ELECTRICAL SOUTH

OCTOBER 1946

A Monthly Journal for Electric Power Companies, Electrical Contractors, Dealers and Wholesalers.

CONTENTS PAGE 11

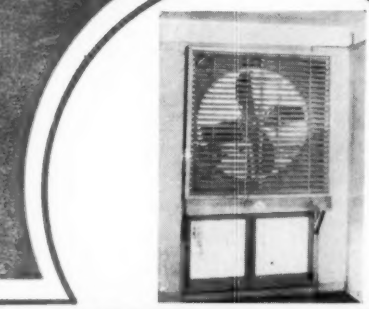
ADV. INDEX PAGE 84

HUNTER FANS.

Among the top class resort hotels in America is The Cloister at Sea Island, Georgia.

Here may be seen during all seasons of every year a type of patronage which expects the best in hotel comfort, food and entertainment.

And under the long experienced direction of the Compton ownership, you will find these complete surroundings including circulating fresh air moved thru the guest rooms by the famous HUNTER ZEPHAIR attic fans.



UNTER FAN & VENTILATING CO., INC.

ERAL SALES OFFICE: MEMPHIS, 400 SO. FRONT ST. • *EASTERN SALES OFFICE:* NEW YORK, 92 WARREN ST.

WESTERN SALES OFFICE: 215 NORTH 17th STREET, ST. LOUIS, MO.

Sales Offices: Atlanta, Chicago, Dallas, Houston, Los Angeles, Philadelphia, Boston, Cleveland, Detroit, Kansas City, New Orleans, Pittsburgh

When Specifications Call for.....

Aluminum covered, Weatherproof

BENCO SOCKETS

....Customer Satisfaction endures

Weatherproof

One-piece aluminum casing and retaining ring keep out dampness and moisture.

Insulated Interior

Additional safety is provided by extra heavy, heat resisting porcelain insulation.

Efficient Lamp Grip

Eliminates danger of accidental loosening of lamp due to vibration or wind action.

Easy-to-Wire

Large binding screws; one-piece interior slips out when retainer ring is unscrewed.

***Specify "BENCO" for all indoor and outdoor locations* where extra sturdiness, safety, and high insulating properties are desirable!**

Today... more and more specifications are calling for "Benco" Sockets. They are being specified in increasing numbers where requirements call for a metal clad socket specially designed to withstand the corrosive effects of outdoor weather conditions and indoor dampness. In addition, because of their sturdiness, spring type lamp grip, and excellent insulating properties they are being recommended for many other locations where dependable performance is a must.

Write for free data bulletin containing complete details on "Benco" Sockets and Porcelain Enameled Reflectors with "Benco" Threaded Necks. Sent without cost or obligation. Benjamin Electric Mfg. Co., Dept. Z-1, Des Plaines, Illinois.

BENJAMIN

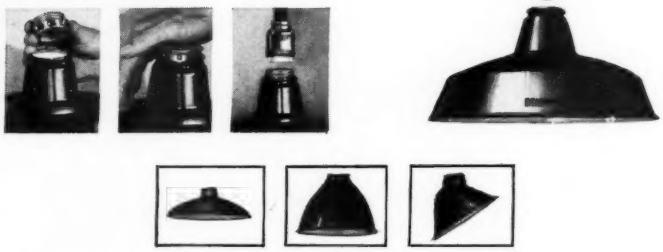
Lighting Equipment

Distributed Exclusively through Electrical Wholesalers

Benco Pull Chain Sockets

Chain action completely inside the casing so that sockets are truly weatherproof. Addition of reflector or shade holder does not hamper chain action.

1713



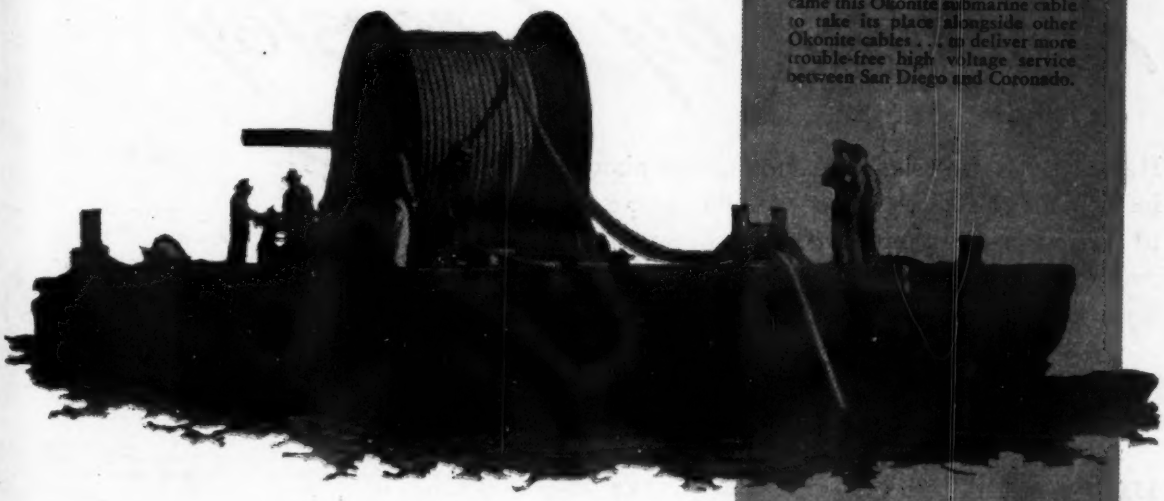
Porcelain Enameled Reflectors Easily attached to "Benco" Sockets

Ease of reflector attachment is an important feature of "Benco" sockets. Especially are these sockets designed to provide for the quick, easy attachment of Benjamin Porcelain Enameled Steel Reflectors. Reflectors are securely attached simply by removing the threaded retaining ring located at the bottom of the socket and replacing that ring with the threaded neck of the reflector itself.

Any Benjamin reflector with a Type N Neck for standard 2¼ inch shade holders can be attached to a "Benco" socket by using the "Snap-In" Reflector Holder illustrated. RLM Domes, Shallow Domes, RLM Bowls or RLM Symmetrical Angle Reflectors are offered. All of these reflectors are, also, available with permanently attached "spun-in" "Type S" holders for attachment to "Benco" sockets.

ELECTRICAL SOUTH is published monthly by W. R. C. Smith Publishing Co., Marietta, Ga., and Atlanta, Ga., U. S. A.
Subscription rates, United States and Possessions, $1.00 for one year; Canada, $1.50 per year; Foreign Countries, $2.00 per year.
Entered as second class matter at the postoffice, Marietta, Ga., under Act of March 3, 1879.
Volume 26 Number 10

UTILITY LAYS 12,000 VOLT SUBMARINE CABLE IN 10½ MINUTES



4000-foot Okonite non-leaded submarine cable provides another high voltage power link between San Diego and Coronado

Anticipating the need for more electrical power to keep the fast growing Coronado area humming, San Diego Gas and Electric Co. recently laid another Okonite high voltage submarine cable across the bay to Coronado.

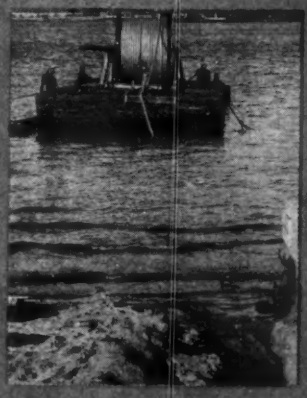
This 50-ton, 4000-foot cable was shipped across the continent by rail and rewound to a special reel aboard a barge upon arrival. The laying operation was completed in the record time of 10½ minutes.

Constructed by The Okonite Company, this 12,000 volt cable has an overall dimension of approximately 4¾ inches and carries three 500,000 cm conductors and three pairs of 12 Awg communication wires. The Okolite insulated conductors are resistant to moisture, heat, ozone, chemicals, acids and alkalies . . . thus eliminating the need for lead sheathing . . . an important saving in weight and cost. A tough outer steel armor, helically wound over a cushion of pre-saturated jute, provides plenty of protection against possible mechanical damage to the cable.

When confronted with the problem of crossing rivers or bays . . . or when selecting the right insulated wire or cable for any requirement . . . let Okonite Engineers give you the benefit of their experience. The Okonite Company, Passaic, New Jersey.

ACROSS THE CONTINENT by rail came this Okonite submarine cable to take its place alongside other Okonite cables . . . to deliver more trouble-free high voltage service between San Diego and Coronado.

TWO-WAY RADIO COMMUNICATION between tug and shore was set up by a surveying unit of San Diego Gas and Electric Co. to assure the proper course was followed during laying operations.



NEARLY 400 FEET PER MINUTE was the speed this 50-ton Okonite Submarine Cable reeled out to the floor of the bay.

OKONITE OKONITE SINCE 1878 **insulated wires and cables**

4574

Question

How prosperous are the families who read your advertising in The Progressive Farmer?

Answer by Crossley

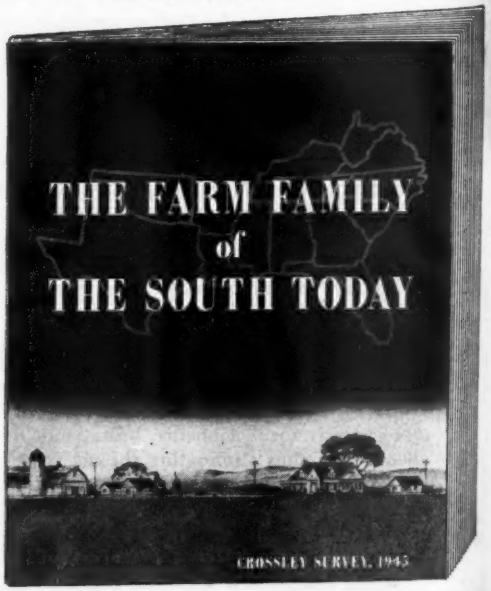
Here is what Crossley, Inc., found out about the income of Progressive Farmer families as compared to the income of other Southern farm families, in a recently-completed, personal-interview survey of a representative sample of the entire farm population of the 14 Southern states:

FARM INCOME	THE PROGRESSIVE FARMER FAMILIES	OTHER SOUTHERN FARM FAMILIES
$5,000 or MORE	19.7%	13.8%
$4,999 to $2,900	18.7%	14.1%
$2,899 to $1,700	23.6%	19.9%
$1,699 to $1,300	12.3%	12.1%
$1,299 to $900	11.8%	13.4%
$899 or less	12.2%	24.3%
Did not answer	1.7%	2.4%

The survey was conducted by Crossley, for The Progressive Farmer, to obtain accurate information on such important factors as FARM INCOME . . . FARM TENURE . . . SIZE OF FARM AND HOME . . . SIZE OF FAMILY . . . AGE, SEX AND EDUCATION . . . MAGAZINE READERSHIP . . . FARM MAGAZINE READERSHIP AND PREFERENCE.

This survey proves that among all publications read by the most prosperous Southern farm families, The Progressive Farmer is FIRST in regular readership and FIRST in preference.

IF YOU have questions regarding the Rural South, perhaps this booklet contains the answers. Published in 24 pages are the results of a Crossley Survey to obtain accurate information on "The Farm Family of The South Today." Inquire at any Progressive Farmer office listed below.



The South Subscribes to The Progressive Farmer

Advertising Offices: BIRMINGHAM • RALEIGH • MEMPHIS • DALLAS • NEW YORK • CHICAGO • Edward S. Townsend Co., SAN FRANCISCO, LOS ANGELES

AVERAGE NET PAID 1947 CIRCULATION **ONE MILLION**

Elevation 13,500 feet...

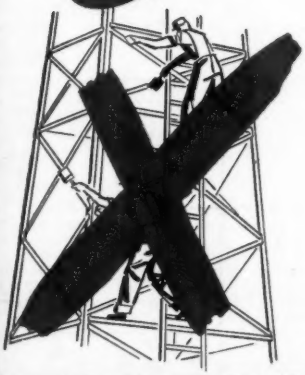
AND TOUGH GOING TO GET THERE . . . WOULD BE A "NATURAL" FOR TOWERS OF ALCOA ALUMINUM

The lighter weight of Alcoa Aluminum structural shapes greatly simplifies the transportation of materials to sites like this. It makes erection easier, too—facts well worth remembering when you're designing towers for out-of-the-way places.

Even if you don't have a right-of-way over this kind of country, there's another way Alcoa Aluminum can simplify your operation.

Aluminum is highly resistant to corrosive attack; it normally needs no protective painting. Use Alcoa Aluminum structural shapes, therefore, in the upper portions of your towers and eliminate the need for costly and hazardous painting.

Designers and operating men interested in this idea may obtain full data on Alcoa Aluminum structural shapes through the nearby Alcoa office. Or write ALUMINUM COMPANY OF AMERICA, 2164 Gulf Building, Pittsburgh 19, Pennsylvania.



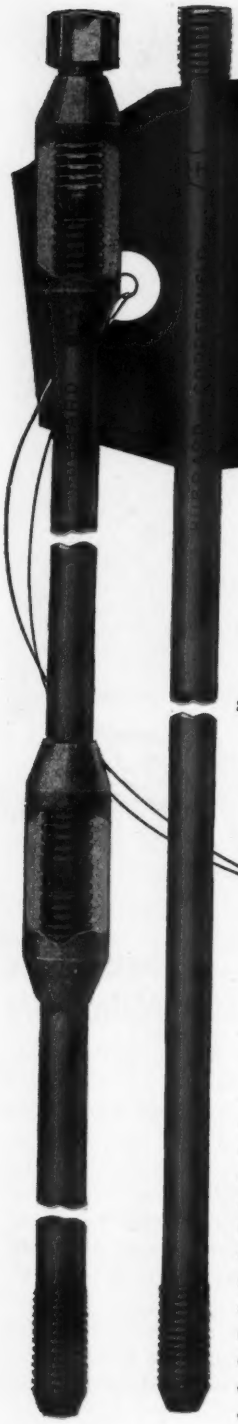
Aluminum normally needs no protective painting.

ALCOA FIRST IN ALUMINUM

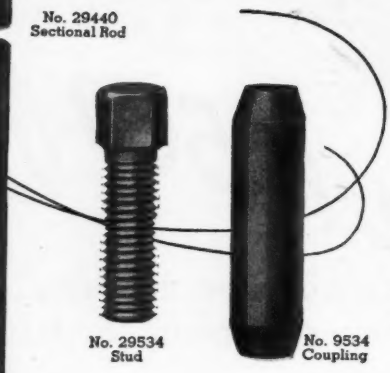
IN EVERY COMMERCIAL FORM

The Endurance of Copper-Plus The Strength of Steel

HUBBARD-COPPERWELD SECTIONAL GROUND RODS



Assembly of Sectional Rods—Couplings and Stud



Hubbard-Copperweld Sectional Ground Rods have been designed for use in locations where deep grounds are necessary to reach firm soil. The use of sectional rods eliminates the nuisance of extra long rods which are clumsy to handle in the warehouse and on the truck. Sectional rods are the same as standard except that they are threaded on each end. Joining is accomplished by couplings as shown. For driving purposes a stud bolt is inserted in the coupling at the top of each section.

Stock No.	Description	Size	Approx. Wt. per 100 Pcs.
29430	Sectional Rod	1/2" x 10 Ft.	550
29440	Sectional Rod	5/8" x 10 Ft.	860
29450	Sectional Rod	3/4" x 10 Ft.	1220
9533	Coupling	1/2"	18
9534	Coupling	5/8"	30
9535	Coupling	3/4"	46
29533	Stud	1/2"	15
29534	Stud	5/8"	23
29535	Stud	3/4"	35
9491	Safety Set Screw Ground Clamps	1/2"	25
9492		5/8"	35
9493		3/4"	45
9591	Sq. Head. Set Screw Ground Clamps	1/2"	25
9592		5/8"	35
9593		3/4"	45

HUBBARD AND COMPANY

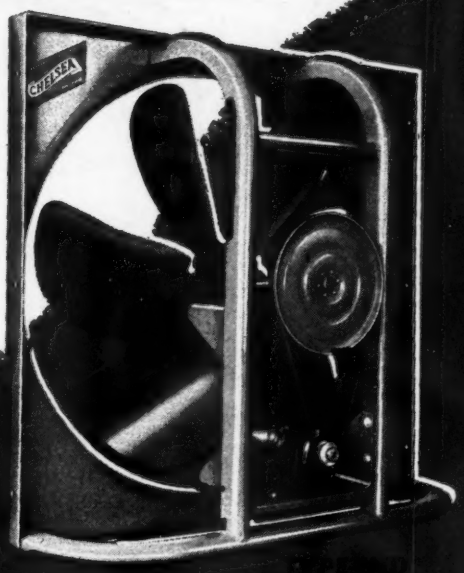
PITTSBURGH · CHICAGO · OAKLAND, CALIF.

EXCLUSIVE NATIONAL SALES AGENTS FOR COPPERWELD GROUND RODS AND CLAMPS

Chelsea Ventilating Coolers for Home, Office, Factory or Store!

MEMBER PROPELLER FAN MANUFACTURERS ASSOCIATION

PLAN NOW



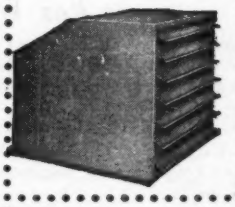
TYPE IND STREAMLINED INDUSTRIAL FAN:

TYPE ED STREAMLINED ATTIC FAN:

INVESTIGATE THESE WIDELY-USED CHELSEA VENTILATING UNITS

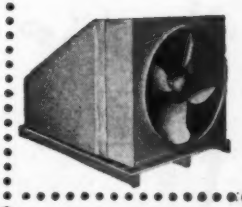
Type LWL Automatic Louvers: For general ventilation installations. Protects fan when not in use. Aluminum leaves pivoted in machined brass to reduce friction; tie rods cadmium plated bushings. Larger units dual to eliminate twisting of leaves.

Type AA Utility Fan: For cold storage, meat packer and freezer applications. Totally enclosed ball bearing motor with both front and rear guards. Capacity: AA20 — 3000 CFM; type AA24—4800 CFM. Fan speed—1100 rpm.



Type PH Penthouse Roof Ventilator: For roof ventilation. Operates against static pressures using the IND type industrial fan housed in steel penthouse with automatic shutters. Completely assembled—ready for installation

Type P and MC Pedestal Fans: For shops, offices, stores, and factories. Rugged construction with steel die-stamped blades. Motor and fan shaft ball bearings. All parts protected against rust. Available in a wide range of sizes.



Type EU Package Attic Fan Unit: For cooling homes, churches, hotels, hospitals, schools, etc. New streamlined venturi orifice delivers greater air volume. ASH and VE method certified ratings. Efficient, low current consumption motors.

CHELSEA PRODUCTS
1206 GROVE STREET, IRVINGTON, NEW JERSEY

QUALITY SERVICE DEPENDS ON QUALITY MATERIALS...

OHIO CARBON BRUSHES

...Designed to Fit Your Requirements!

OHIO CARBON BRUSHES

OHIO CARBON BRUSHES are engineered for good commutation in nearly 15,000 styles of motors — are designed to give your customers peak performance and reduce their motor worries — insure you against complaints and lost time in doing the job over.

OHIO CARBON BRUSHES offer these advantages to increased motor efficiency — give uniform high starting torque — resist severe shocks from constant starts — minimize burning, overheating or sparking — reduce unnecessary current losses — protect against excessive wear — stop squeals and chatter — and give much greater service life.

Increase your profits and improve your service with *OHIO CARBON BRUSHES.* Thousands of different types and styles are carried in stock for immediate delivery.

Write for Application Data Folders Now

PEDIGREE INSULATING VARNISHES

...The Product with a Pedigree!

The PRODUCT WITH A PEDIGREE THE P.D.GEORGE CO.

Every *PEDIGREE VARNISH* sold has been tested and service-proved by some of the world's largest electrical manufacturers. *PEDIGREE* means the best in the field — impregnating varnishes — varnishes for baking or drying — finishing varnishes — protective sealers — sticking varnishes — insulating compounds — machinery enamels.

Whether you need protection against oil, acid, alkali or moisture — protection against heat — maximum insulating qualities — tough and flexible coatings — *PEDIGREE* provides the *right* product to do the job *right!*

Insist on *PEDIGREE VARNISHES* — guaranteed to satisfy or your money back. You won't get the best unless you say *"PEDIGREE."*

Send for Application Chart, Catalog and Samples

MACALLEN MICA

...It Has What It Takes!

MACALLEN MICA is the universal choice in every shop doing quality, guaranteed motor service work. *MACALLEN MICA* has the highest dielectric strength of all easily worked insulation materials and is unaffected by heat.

Manufactured under exacting production controls to insure perfect accuracy, *MACALLEN MICA* is furnished in sheets in all thicknesses and sizes for moulding and cold forming, segments, and in every other form required for all shop needs.

Use *MACALLEN MICA* for your best jobs.

Samples and Prices Sent on Request

INSULATION AND WIRES SERVICE

INSULATION AND WIRES INCORPORATED

2127 PINE ST. • ST. LOUIS 3, MISSOURI

ATLANTA 3, GA. • HOUSTON 2, TEX.

Send for Your Copy of the IWI Blue Catalog.

You Can Always Rely on RACO!

RACO

SWITCH BOXES

OUTLET BOXES

Many other types also available . . .
A BOX FOR EVERY NEED

Remember, you can always Rely on Raco! It's more than a catch-phrase, more than a slogan—it's your positive assurance of a quality line that's preferred by electrical contractors, architects, and builders the country over! And, here's why:

THEY'RE CLEAN—no ragged or rough edges—attractively finished!

THEY'RE UNIFORM—every Raco product is made to the same exact measurements.

THEY'RE DEPENDABLE—the Raco line is backed by more than 34 years' experience in the designing, engineering, and production of steel products.

THEY'RE PACKAGED—Raco boxes come packed in cartons. Easy to stock, inventory and identify.

Write today for your free copy of catalog on Raco products. It's the dependable line that you can install with pride—today—tomorrow—and for many years ahead.

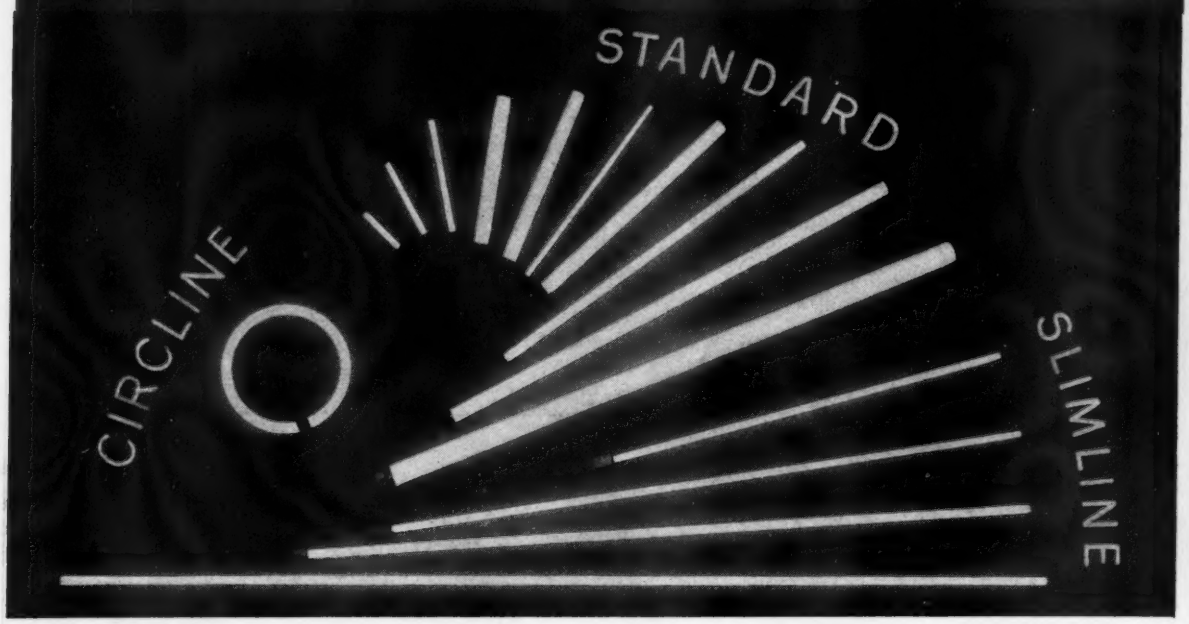
ALL-STEEL EQUIPMENT, INC.
800 Kensington Ave., Aurora, Ill.

RACO
ALL-STEEL PRODUCTS

A Complete Line of Switch and Outlet Boxes

ALL-STEEL EQUIPMENT, INC.

Now! A complete line of G-E Fluorescent Lamps in the popular new 4500 white

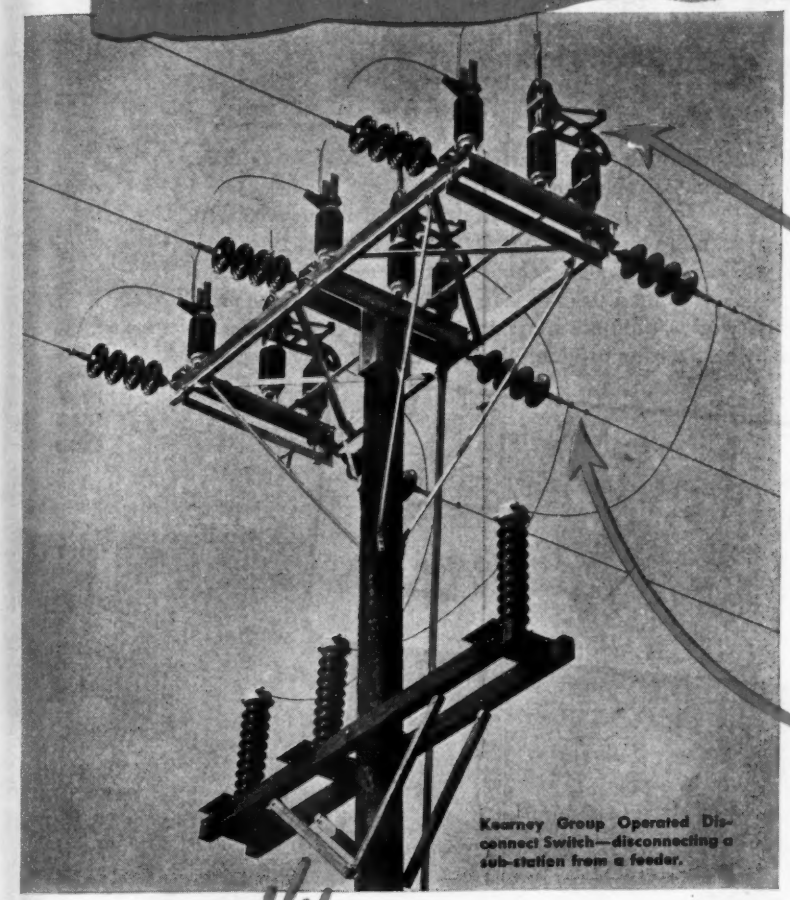


No one color of fluorescent light is best for all purposes. But it's significant that since G-E introduced the new 4500 White in 40 and 100-watt lamps a year ago, the popularity of this refreshing color has grown by leaps and bounds. Now, to meet an ever-increasing demand, G-E has placed in production a complete line of 4500 White Fluorescent Lamps, from 6 to 100-watts, including Slimline and Circline.

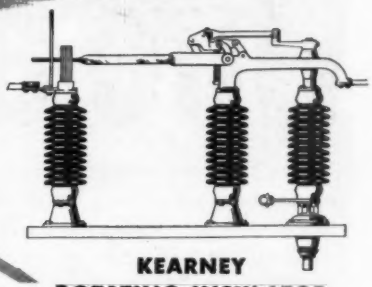
4500 White was developed by General Electric Research to provide a fluorescent lamp with color characteristics between the 3500 White Lamp and the 6500 Daylight Lamp. Here's a happy medium in white lighting . . . cool without being cold . . . near enough to daylight to meet most needs for color discrimination . . . and psychologically pleasing for indoor illumination use.

Before you order new lamps, be sure to see the new 4500 White. Call your G-E lamp representative and ask for a demonstration.

KEARNEY ROTATING INSULATOR SWITCHES
Assure Easy Trouble-free Operation

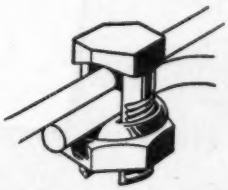


Kearney Group Operated Disconnect Switch—disconnecting a sub-station from a feeder.



KEARNEY
ROTATING INSULATOR
GROUP OPERATED SWITCHES

are easy to operate because all contact friction is eliminated during blade travel, and because ball bearings are used in the insulator bearing. They have high ice breaking ability. Current carrying parts have adequate capacity including a large safety factor.



Get Permanent Connections Quickly with
KEARNEY
Solderless CON-NEC-TITES···

Provide permanent, positive electrical connection. "Hex" heads, sturdy construction, uniform threads, weather resistant material and other design features make this one of the most popular solderless connectors. They are fast and easy to use—linemen like them and they save time, reduce costs. Available for all combinations of metallic conductors.

Specify

KEARNEY PRODUCTS

JAMES R. KEARNEY CORPORATION OVERHEAD & UNDERGROUND UTILITY EQUIPMENT

4224-42 CLAYTON AVE., SAINT LOUIS 10, MO.—*Canadian Plant*, LEASIDE, ONTARIO

Because of the basic importance of adequate wiring to the entire electrical industry, Anaconda is presenting messages like this in a wide list of national publications

Wire ahead FOR FULL PRODUCTION

WHEN ELECTRIC POWER costs so little... and other costs are rising, no management can afford to overlook adequate wiring.

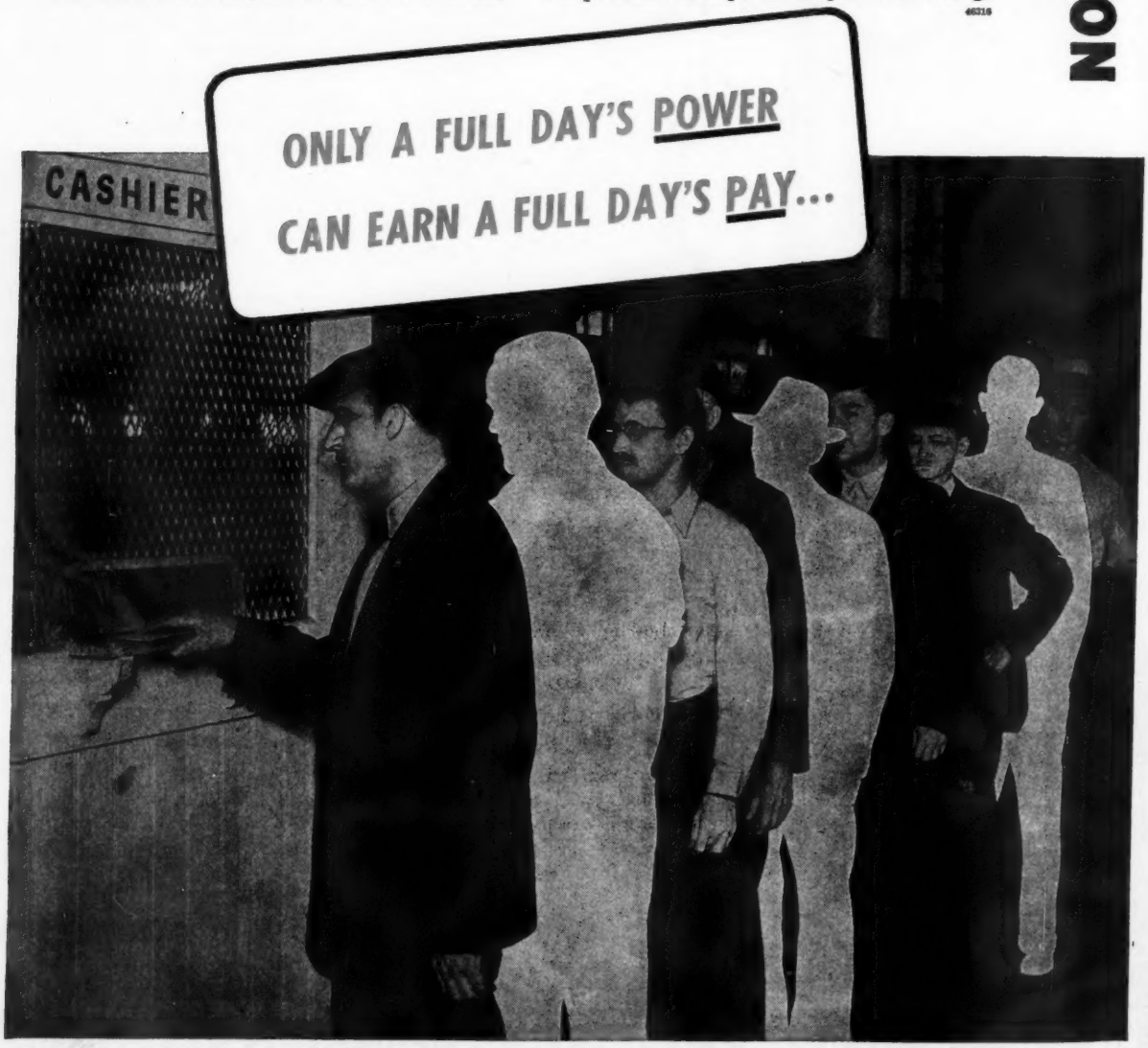
Obsolete wiring, overtaxed wiring can reduce machine efficiency, and hence worker efficiency, from 25 to 50 per cent.

For, when power fails, the productivity of the most ambitious, the most conscientious, the most skilled workmen you have must drop accordingly.

Talk over your wiring problem *now* with your plant power engineer, your consulting engineer, electrical contractor or power salesman. It may save expensive alterations later.

These men *know*, as you suspect, that postwar production depends on postwar wiring.

46316



ANACONDA **ANACONDA WIRE & CABLE COMPANY**

ELECTRICAL SOUTH

OCTOBER, 1946

VOL. 26 NO. 10

CARL W. EVANS, *Editor*

WARREN C. RUTLAND, *Assistant Editor*

BARON CREAGER, *Southwestern Editor*

T. W. McALLISTER, *Vice Pres., Editorial Director*

FRANK P. BELL, *Business Manager*

W. E. COOGLER, *Production Manager*

In This Issue

Georgia Power Installs 110,000 Volt Cable	13
Selling Time is Here Again	17
Standardization of Small Motors Undertaken	19
Accounting for Contractors—Part 4	21
Home Appliance Exposition Climax of Postwar Plans	22
News Briefs of the Industry	28
Electrical Product Parade	31
Appliance Merchandising	38
Electrical Installations	46
Electrical Equipment	52
Capitol Comment	58
More News of the Industry	60
Names in the News	66
New Electrical Books	69

Copyright 1946, *W. R. C. Smith Publishing Co., Atlanta, Georgia*

Member A. B. P. — A. B. C.

ANNUAL SUBSCRIPTION—$1.00

Business Representatives

L. E. ALLEN, 189 W. Madison St., Chicago, Ill. Tel. Franklin 2068.
L. B. CHAPPELL, 427 W. 5th St., Los Angeles, Calif. Tel. Tucker 9363.
L. R. McCARTY, 325 Winding Way, Merion, Pa. Tel. Merion 1066.
W. A. McGEE, Post Office Box 562, Charlotte, N. C. Tel. 3-4932.
W. G. SHEEHAN, 2516 Gasser Blvd., Rocky River 16, Ohio. Tel. Edison 0856.

Published Monthly by

W. R. C. SMITH PUBLISHING COMPANY

Atlanta and Marietta, Georgia

Editorial and Business Offices

Grant Building, Atlanta, Georgia

W. J. ROOKS, *President;* RICHARD P. SMITH, *Executive Vice-President;*
T. W. McALLISTER, *First Vice-President;* E. W. O'BRIEN, *Vice-President;*
A. E. C. SMITH, *Vice-President;* J. C. COOK, *Vice-President;*
O. A. SHARPLESS, *Treasurer;* A. F. ROBERTS, *Secretary;*
SEBA J. JONES, *Assistant Secretary and Treasurer.*

Publishers Also of

SOUTHERN AUTOMOTIVE JOURNAL — SOUTHERN BUILDING SUPPLIES
SOUTHERN POWER & INDUSTRY — COTTON — SOUTHERN HARDWARE

Coolair TRADE MARK **Attic Fans**

Thousands of home planners have learned of the pleasure and comfort to be derived from an efficient attic fan, and are specifying Breeze Conditioning by COOLAIR as the *finishing touch* to the many exciting new conveniences now becoming available.

Increased profits are in store for dealers who handle this modern home-cooling equipment, sold on the firm foundation of *greater value.* Fabricated of quality material by experienced engineers, Coolair offers guaranteed capacity ratings, plus:

1. EXTRA-QUIET OPERATION. Vibration and air noises are cut to a minimum by patented spring mounting, multi-blade design, streamlined inlet.
2. EXTRA-LONG LIFE. Oversize ball bearing fan shaft and sturdy, welded-steel frame are built for extra years of trouble-free service.
3. EXTRA ECONOMY. Operation at slower fan speeds, made possible by eight large blades, means lower power consumption, less wear.

Ask your Coolair distributor or agent, without delay, for complete information on the profit opportunities awaiting wide-awake dealers. Or you may write us direct at the factory.

A full description of the Coolair line, with tables showing models, dimensions, performance data, etc., can be found in

SWEET'S CATALOG FILE Architectural — SWEET'S CATALOG FILE For Builders

A.S.H.V.E. GUIDE — ELECTRICAL BUYERS REFERENCE

AMERICAN COOLAIR CORPORATION Manufacturers

3604 MAYFLOWER ST. JACKSONVILLE 3, FLORIDA

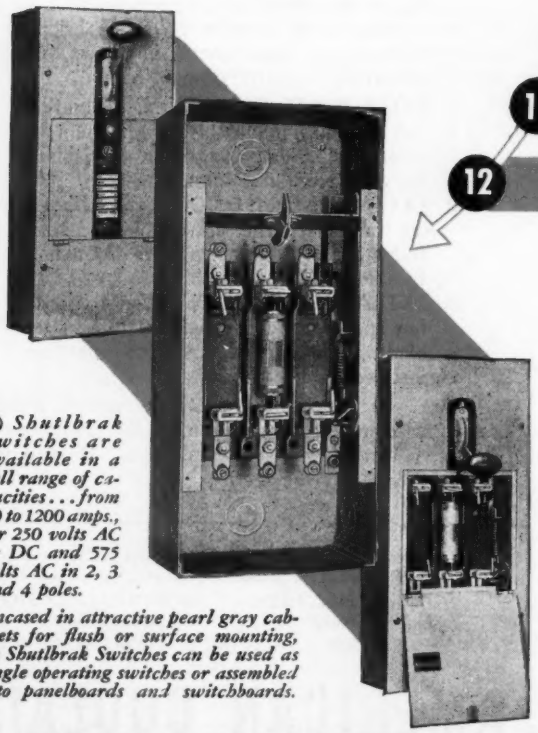
At Least a

Dozen Reasons

WHY YOU'LL LIKE FA SHUTLBRAK ENCLOSED SAFETY-TYPE SWITCHES

There are many reasons for the mounting popularity of FA Shutlbrak Switches. Some say, for instance, they like its easier, split-second speed of operation . . . its new shuttle mechanism feature that gives quick make and break connections. Others say it is the simplicity of design that appeals to them . . . ample knockouts and wiring space at top, bottom and back. Still others say it is its trouble-free service and many practical safety features . . . its long lasting economical operation.

1. Positive Make and Break
2. Silver-Plated Contacts
3. Front Operation
4. Attractive Finish
5. Removable Switch Unit
6. Interlocking Fuse Doors
7. Kamklamp Fuse Holders
8. Full Range of Capacities
9. Solderless Pressure Connectors
10. Ample Wiring Space and Knockouts
11. Approved By Underwriters' Laboratories
12. Versatility: Individual or Panelboard and Switchboard Assemblies



FA Shutlbrak Switches are available in a full range of capacities . . . from 30 to 1200 amps., for 250 volts AC or DC and 575 volts AC in 2, 3 and 4 poles.

Encased in attractive pearl gray cabinets for flush or surface mounting, FA Shutlbrak Switches can be used as single operating switches or assembled into panelboards and switchboards.

Whatever the reason, the fact remains that FA Shutlbrak Switches embody the latest in design and construction, making them the popular choice for high quality, heavy duty switching. So the next time you need a good operating switch, ask your dealer to show you an FA Shutlbrak or send for our 20-page Bulletin No. 70.

If it's FA it's "OK"

MAKERS OF . . .
BUSDUCT
PANELBOARDS
SWITCHBOARDS

Frank Adam
ELECTRIC COMPANY
St. Louis, Missouri

SERVICE EQUIPMENT
SAFETY SWITCHES
LOAD CENTERS
ELECTRIC QUIKHETER

Georgia Power Energizes 110 Kv Cable First of Its Kind in the South

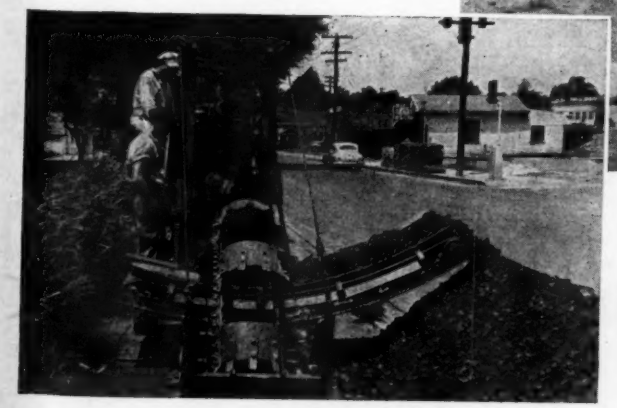
By Paul B. Boyd*

RAPIDLY INCREASING loads in the Atlanta area served by the Georgia Power Company has led to the installation of a 5-mile, 110,000-volt, oil filled pipe type cable. As early as 1944 it became evident that additional transformer and line capacity was required in the Atlanta Area. In a three-year period the demand on the Atlanta 19,000-volt distribution system had increased 25 per cent. System studies showed that the installation of a 110 kv cable line between Boulevard and Grady Substations and the installation of additional transformer capacity at Grady and Walton Street Substations would relieve the overloaded conditions in the 19,000 volt distribution system.

Although installation work was started in November 1945, the cable was not finally placed in service until August 21, 1946. This is one of the first cables of its type in operation in the South.

The oil filled pipe type cable system consists, in brief, of three single conductor impregnated paper insulated shielded cables installed in a welded steel pipe and terminating at the substations in single conductor cable terminals. This pipe is coated with an asphalt mastic type of covering and is filled with oil which is held under approximately 200 lbs. pressure. An oil pressure pumping plant with automatic regulating valves at Grady Substation is a part of the installation. The cable system is a part of the Georgia Power Company's 110-kv, 3-phase, 60-cycle, solidly grounded neutral transmission system and is rated to carry 75,000 kva, 3-phase, at 85 per cent load factor.

The Georgia Power Co. awarded a



The above and following photographs show some of the procedures followed in the installation of the 110 kilovolt oil filled pipe cable recently completed at Atlanta, Georgia. Installation was facilitated by the use of the trenching machine shown at left. In the center picture, the Somastic coating on the pipe is being tested with Holiday tester. At top, pipe is being rolled to align seam in pipe as joints are welded.

*Mr. Boyd is senior engineer for the Georgia Power Company, Atlanta.

At left, the pipe is shown capped in a manhole. Each such section was evacuated and thoroughly tested for leaks. At the right, the three cables are being prepared for pulling into the pipe. A piano wire under the lead sheath is used to cut the lead from the cable as it is entering the pipe. An atmosphere of carbon dioxide is maintained in the pipe while the cable is being drawn in, preventing the cable from absorbing any moisture before pipe is filled with oil. As each section was pulled in, the pipe was capped and oil pumped in under pressure.

contract to the Okonite-Callender Cable Co. for material, equipment and supervisory service for a 110-kv Bennett Oilostatic Cable System, and proceeded to install the cable system with its own underground construction forces.

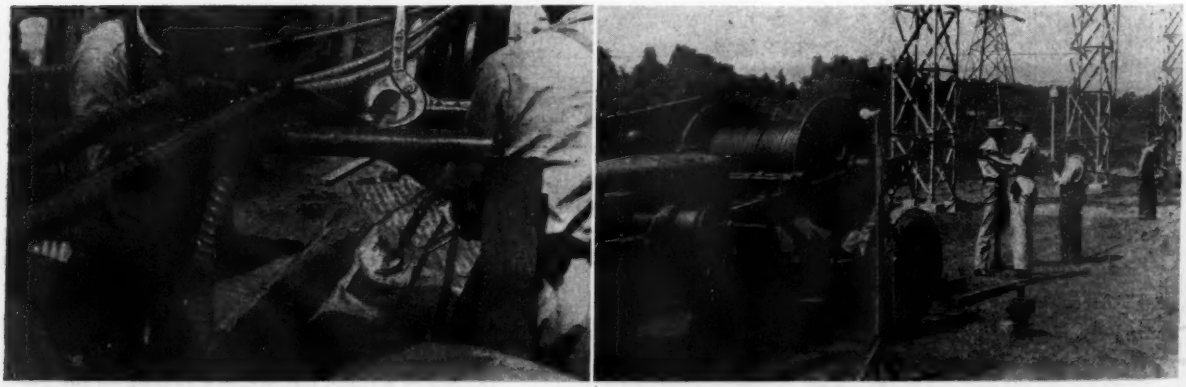
Description of Materials

The cable is single conductor 350,000 cir mil (37 strands) compack round with 0.465″ wall of impregnated wood pulp paper insulation with three metallized paper tapes wrapped over each copper conductor and included as part of the insulation, one metallized paper tape over insulated conductor, one 0.003″ copper shielding tape, one layer muslin tape and a "D" shaped hard drawn copper wire armor applied in open spiral over the insulated shielded conductor.

The "D" armor prevents mechanical damage to the cable during the pulling operation, allows circulation of oil around the insulated cable and is contributive to the transfer of heat from the cable to the pipe. The cables for shipment have a 4/64″ lead sheath covering which was stripped from them before installation in the pipe. The insulation is composed of two grades of paper; super dense adjacent to the conductor, and dense paper. The thickness of insulation 0.465″ is same as for oil-filled cable per A.E.I.C. Specification, third edition February 1938, for 110-kv system. The conductor size, 350,000 cir mil, is the size estimated to carry 75,000 kva at 110 kv and at 85% load factor with an assumed ambient earth temperature of 25 deg. C and a maximum copper temperature of 70 deg. C. On the test to breakdown, the cable was tested up to 1120 volt per mil hour without breakdown, that is, 520 kv-hour.

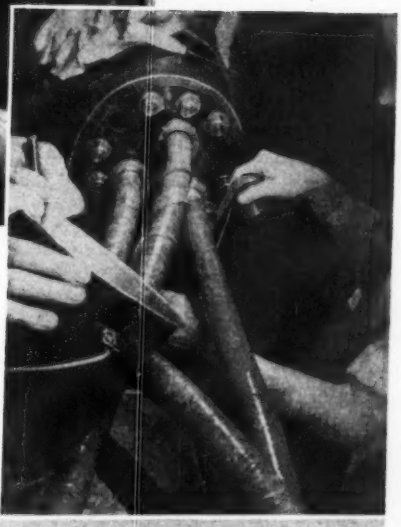
The pipe is electric resistance welded black line pipe 5-9/16″ O.D. with 0.258″ wall. The pipe has flared ends and chill rings are used in the flared ends to prevent the formation, when welded, of an icicle-like formation on the interior. The pipe was furnished in double random lengths, varying in lengths from 42′-0″ to 49′-6″. The pipe was manufactured by the Republic Steel Company, Youngstown, Ohio.

It was required that the pipe be plugged for shipping, the inside given a coat of Verticol and the outside left uncoated. It was necessary that the pipe be scale-free and clean as well as dry. The pipe was made from grade A, open hearth steel, which had the following chemical composition: Manganese, 0.30-0.60; phosphorous, not over 0.045; sulphur, not over 0.060; and carbon, not over 0.15. The mini-

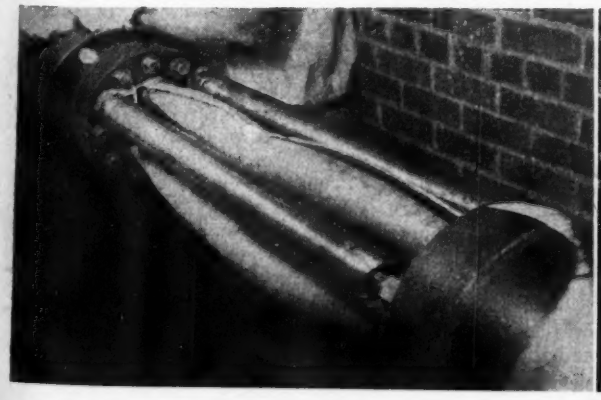


As the lead is stripped from the cables, it is cut off in three or four foot lengths with the large lead cutters shown above. At right is the cable pulling tractor used to pull in the cable in runs that varied from 1200 to 1500 feet.

Picture at upper left shows the Micarta stop plate in place on the reducer at a typical pipe termination in manhole. After cables were pulled in, night caps such as shown at right were installed to protect cable ends from atmospheric moisture.



Upper left, installing stop plate in place with cables threaded through openings. Center, the Burndy Hypress as it was used to compress the connectors in making joint. Right, the cable ends as they appeared just before the installation of night caps shown at upper right at top of the page. At the left, below, is a typical manhole joint with all three conductors insulated and tie rods placed ready for installation of the joint sleeve. The evacuating of pipe was done with the special vacuum pump shown at lower right. It was mounted on a truck.



mum tensile strength of the pipe is 48,000 lbs. sq. in. and the yield point 30,000 lbs./sq. in. Each length of pipe was subjected to a hydrostatic test of approximately 1100 lbs./sq. in.

The pipe is coated with "Somastic" for corrosion protection. Somastic is an asphalt mastic covering for pipe, manufactured and applied by the Industrial Engineering Company. It was developed by the Standard Oil Company of California. The coating consisted of the following materials:

1. Air blown asphalt from selected crudes (approx. 12%).
2. Non-micaseous washed sands, carefully graded, all passing Tyler Standard No. 6 screen (approx. 63%).
3. Finely ground mineral filler (limestone) free from dirt or foreign matter (approx. 24%).
4. Long willowed asbestos fibre free from dirt, grit and moisture (approx. 1%).

This coating has been used since 1940 on many gas and oil pipe installations, totaling some 2900 miles in the United States. The Somastic is extruded onto the pipe similar to the manner in which the lead sheath is extruded onto an insulated cable. The coating is applied by a portable plant set up at a railroad siding. It takes approximately one week to dismantle and assemble the plant.

Application of the Coating

The first process in applying the Somastic coating is to apply the primer coat of asphalt. The plant is so located that the pipe rolls directly from the railroad car by the way of a storage pile to the primer plant. The plant in order shot blasts the pipe, removing all oil, dirt, and rust, heats the pipe and applies the asphalt primer coat. The pipe then goes into another storage pile from which it goes through the machine which extends the Somastic covering onto the pipe. The pipe, once the priming coat is applied, has to have the Somastic coating placed on it within two days or another coat of primer applied.

The Somastic coating on the 5-9/16" pipe was a nominal thickness of 1/2" with a minimum thickness of 3/8". The Somastic coating was applied to the pipe in Carthage, Texas. The pipe was then shipped in gondola type cars to Atlanta. Straw was spread on the bottom of the car to prevent damage to the Somastic coating, and the pipe was stacked six high. The coating was tested by means of a Holiday Detector, utilizing a potential of 45,000 volts with a 1½" spark at the detector ring, before installing in Atlanta. A very small number of pipes had to have the coating repaired due to damage in transit.

The joints are semi-stop joints. The cables at each end of the joint are brought through a stuffing box into the joint. The reducers for the joints are welded onto the 5-9/16" pipe. The two reducers are held in position and a definite distance apart (44") by three tie rods. The joint sleeve is a Dresser type made in two halves. The copper connectors in the joint are compression type. The Burndy foot-operated Hypress is used to compress the connector. A 3/4" pipe connects the 5-9/16" pipes on each side of the semi-stop joint, a tap is made from this by-pass into the joint. Gate valves at the connection to the 5-9/16" pipe allow any section of the line to be isolated.

The complete pumping plant is housed in one cabinet. The pumping plant is made up of two pumping units, either of which or both may be used simultaneously. Each pumping unit consists of one screw type pump (2½ gallons per minute capacity) with mercoid pressure control relays, one mercoid magnetic relief valve, and one cash relief valve (safety valve). Gauges on the cabinet indicate number of gallons in oil reservoir, oil pressure in pounds in pipe line, and nitrogen pressure in pounds in oil reservoir (positive pressure). A recording chart gives the oil pressure in pounds in the pipe line over a seven day period. An alarm and indicating lights show low oil level in reservoir, high oil level in reservoir, low nitrogen pressure, high nitrogen pressure, low oil pressure in pipe line and high oil pressure in pipe line.

The cable terminals are 161-kv potheads manufactured by the Ohio Brass Company. The pothead has two porcelains, giving two distinct oil chambers, the inner chamber containing the cable has the oil under the same pressure as in the pipe—approximately 200 pounds. The oil between the inner and outer porcelains is at atmospheric pressure. The cable terminals are similar to the cable terminals installed in the Oilostatic Cable Systems at Burlington, N. J., and Baltimore, Md., thus making the spare potheads on the three installed systems all interchangeable.

A check plate is placed between the pothead and the incoming copper pipe from the terminating joint. The major function of the check plate is to prevent loss of oil in the high pressure chamber of the pothead due to a leak in the system. The cable would continue to operate without pressure on oil for that matter for a considerable period, but if the oil level were lowered in the pothead, it would cause a vacuum and in the presence of same could flash to ground.

The oil reservoir has a capacity of 1200 gallons. Actually, a tank of 800 gallons would be sufficient to take care of the oil expansion in the pipe line, but the larger capacity tank was furnished as this tank was used to fill each section of the line. Nitrogen pressure is used over the oil in the reservoir. The nitrogen pressure is in the neighborhood of 1 to 2 pounds positive pressure.

Installation of System

The Bennett Oilostatic Cable System was installed in the sidewalk for approximately 70 per cent of the 25,451 feet between the Boulevard and Grady Substations. The placing of the cable system in the sidewalk in this area was required by the City of Atlanta. The placing of the line in the sidewalk was found to be generally easier construction than in the street and, seemingly, no more objectional to the public than in the street.

The manholes (18 in number) were the first part of the system to be constructed. The manholes were constructed of brick with concrete floor and roof slab. The manholes were 9'-6" in length and 5'-0" in width inside measurements, and had 6'-6" headroom. Two manhole covers were placed in the roof slab, one 33" diameter and one 24" diameter cover located at extreme ends of the manhole roof. The center line of the manhole covers were placed directly over the center line of the pipe.

The pipe was placed 2 feet from one wall and a minimum of 2'-3" from the ceiling of the manhole to the top of the pipe. The manholes were placed a minimum of 75 feet from a street intersection, so no streets would be blocked during the pulling of the cable. The manhole roof slabs in the sidewalk areas were so located in respect to depth below grade that the street could be later widened without disturbing the roof slab. Since the manholes have been constructed, the street has been widened at two locations affecting three manholes. The scheduling of the construction of the manholes as the first item of construction allowed cutting lengths for the cable to be determined before any pipe was installed.

The pipe was installed below the water and gas services and below most of the sewer services. The minimum cover on the pipe was three feet. It was planned to install the pipe with an average cover of four feet, actually the pipe was installed with an average cover of five feet due to using a ditch-

(*Continued on page 78*)

Selling Time is Here Again

Utility company's special promotion program on small commercial cooking appliances indicates a vast ready market for this type of equipment.

SELLING TIME is here again—the much touted backlog of orders is dissipating rapidly—and it behooves the wise appliance dealer to scan well the horizon for prospects and markets.

Commercial sales of small appliances is a phase of the appliance business that pays good dividends and constitutes a field where consistent sales work will promote a steady flow of orders. This field is composed of restaurants, roadside stands, taverns, night clubs, coffee shops and sandwich and cold drink stands.

The following is a case history in selling this field that can be profitably duplicated by any appliance dealer who is willing to reinforce his sales effort with personally known facts.

The Kentucky and West Virginia Power Company, Ashland, Ky., ran some pilot plans before, during, and since the war ended, for the purpose of helping all the appliance dealers in their territory sell more merchandise and at the same time insure loads on the power lines.

In a "Cook's Tour" lasting ten weeks in a small area of city, suburban and rural territory, 126 pieces of equipment were sold and 237 kilowatts was added to the load.

One of the most interesting points disclosed and one that should be pounded incessantly into the minds of salesmen, is that outside appearances are deceptive. They placed grills, waffle irons, deep fat cookers, and other appliances in places where the outside appearance gave no hint of the ability or willingness to buy as much as a lead pencil! The "tour" showed that every place open for business was a prospect.

In some instances they were in competition with natural gas at a low rate and a high Btu count. All sales points stressed convenience, cleanliness, automatic control and low cost features of electric appliances.

Before starting this particular tour, R. A. Macomb, district commercial manager, Ashland, Ky., conceived the idea of getting actual cost figures on a domestic unit of waffle baker that could be sold to small restaurants and sandwich shops.

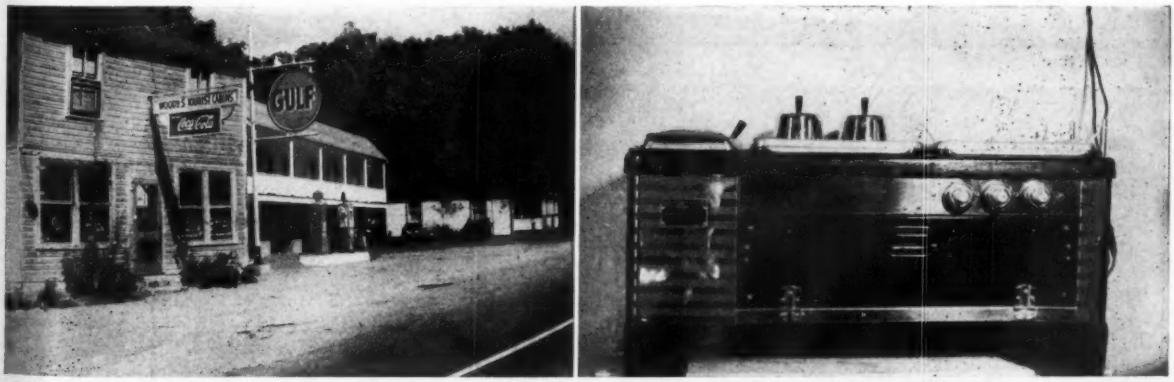
A commercial type waffle baker sells for around $80 to $100 and is worth the money but a domestic waffle baker can be used to show the owner the possibilities and the profit he can make. When this has been done he is glad to buy a commercial size to increase his production and usually adds other appliances at the same time because he has sold himself on the idea of electrical cooking.

The ten-week "Cook's Tour" proved another point in appliance selling, according to Mr. Macomb, and that is that too many dealers think in terms of electric ranges, water heaters, and ten cubic foot refrigerators and don't pay enough attention to active promotion of the smaller units in the appliance line. Four commercial customers can often be sold more equipment in less time and at less expense than one reluctant domestic customer. This is by no means a hint to let the domestic customer go but more of a plan to work both sides of the street.

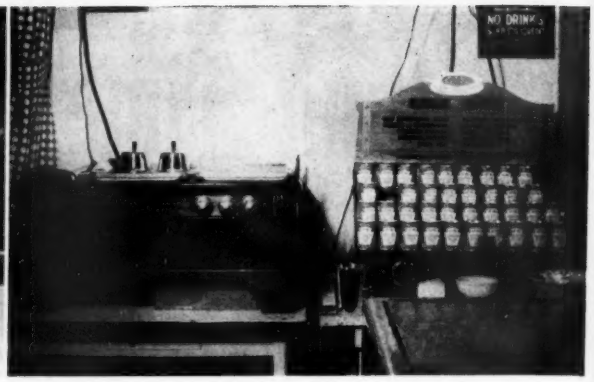
Mr. Macomb said that one of the most important features of their pilot campaign was the fact that cost data and merchandising experience had been tabulated and cataloged on one item. This eliminated the well known line, "Figures show," from the sales talk. It was changed to, "We have proved it to be a fact" that so and so can be done.

While the actual figures and details of their test plan are given here, it is recommended that dealers who intend to follow a similar plan, run a test of their own in order to have their data based on the prices of ingredients in their own territory today.

Kentucky and West Virginia Power Company used a nationally known make of domestic waffle baker which



Appearances are often deceptive. The Kentucky and West Virginia Power Company's promotion program indicated that commercial cooking equipment could often be sold to roadside places of business that looked as though they wouldn't have enough business to justify any kind of purchase of modern electrical cooking equipment.



Tabulation of Test Results*

120 lbs. prepared waffle flour @ 18c	$21.60
1440 oz. pure maple syrup @ .01c	14.40
30 lbs. butter @ 35c (32 servings per lb)	10.50
Total food cost for 960 waffles	46.50
Gross income from 960 waffles @ 15c ea.	$144.00
Food cost as percentage of gross revenue	32.5%
Cost of electric power (205 kwh @ 1c)	$2.05
Total cost of food and electricity	$48.55
Total profit, 60 day period	$96.55
Average daily number of waffles served	16
Average net profit per waffle, approximately	10c

*Obviously, many of the prices indicated above have been increased considerably. The value of the test lies in the relative values involved, since higher prices can be charged for the waffles, and in the intangible aid which salesmen receive when they know that the figures they are quoting are "right, by test."

has a connected load of 1320 watts, adjustable temperature dial, and a good thermostat.

They arranged with a drug store owner to run a test on the equipment on his back bar. Incidentally, this owner was certain that thirty waffles a day would not make him $1000 net profit in a year, which was what the power company had set out to prove.

A separate circuit and a meter was installed for the waffle baker. The owner was supplied with 30 pounds of prepared waffle flour, one gallon of maple syrup, one dozen two-ounce syrup servers, menu stickers, back bar flyers and show cards reading "Delicious Servings of Waffles—Southern Style."

Another show card read "Waffles—Southern Style—15c."

Waitresses were instructed how to mix the batters, operate the baker and keep a record of the number sold. They checked with the owner every few days to see that he always had an ample supply of syrup and batter.

The test was run for sixty days and in spite of the vigilance of the power company, customers had to go with-

(*Continued on page 74*)

The pictures on this page show other instances of sales of commercial equipment to roadside stands.

STANDARDIZATION OF MOTORS UNDERTAKEN

A BROAD new program of standardization for fractional horsepower motors, designed to reduce production costs, insure efficiency and proper application in use, and result in long term savings to customers, was announced recently by members of the Motor and Generator Section of the National Electrical Manufacturers Association.

Due to the increasing number of uses for small motors in household appliances and in an expanding variety of industrial applications, the new NEMA standards are of great importance to allied manufacturing groups, as well as to application engineers, electrical contractors, power suppliers and others in appraising motor performance in terms of nameplate rating and motor application.

The value of standardization as a key factor in obtaining performance interchangeably in application and maximum production efficiency has been recognized by motor manufacturers virtually since the inception of the business, according to L. C. Spoor, of Chicago, vice-chairman of the Fractional Horsepower Subdivision of the Motor and Generator Section of NEMA. Standardization in the general motor field was initiated as early as 1908, he said, and over a period of years has proved to be a powerful factor in establishing high quality products and reducing overall costs.

Costs Reduced 50 Per Cent

One example, he said, was the case of motors made for washing machine manufacturers where through effective standardization, prices were reduced more than 50 per cent between 1923 and 1941, while the volume of standard motors produced was increased several times.

He pointed out that during the war the demand for small motors showed a phenomenal increase, and that the backlog of demand today was among the heaviest of all electrical products. Prior to the all-time peak demand brought on by the war and the existing need for appliances, many special lines of motors were built according to individual specifications, resulting in multiplicity in design and confusion in application, which tended to reduce quantity output compared to that which might be produced under a broad plan of standardization. The tremendous shortage of motors was one of the determining factors, Mr. Spoor said, in developing standards which would facilitate maximum production.

The new standards provide specific definitions of motor rating and performance in coordinated terms of horsepower rating, speed, breakdown torque, and service factor. In formulating the new standards, the motor manufacturers felt that a clearly defined and generally accepted method of evaluating motor performance was essential in order to assure intelligent design, manufacture and use of small power motors.

The fundamental points covered in the standards include not only this new basis of rating, but also previously standardized locked rotor or starting currents of motors. It was emphasized that this was but the first phase in the new program of standardization, and would be followed later this year by other items of standardization such as dimensions, and application standards for hermetically sealed motors, belt drive refrigeration compressor motors, shaft mounted fans and blowers, cellar drainer, gasoline pump, and jet pump motors.

The standards will thus be of major interest to a wide range of users who may as a result be sure that the stamping on the motor nameplate is an accurate designation of the article he is purchasing and will thus obtain increased return on motor investments through proper application, freedom from motor trouble and longer motor life. As a result of better standard definitions, the machinery or appliance manufacturer, for example, can obtain proper motors from all suppliers without having to go through exhaustive engineering tests for each application or make of motor. This is also important from the standpoint of the ultimate purchaser of machines or appliances who has to make a sizeable investment and expects performance and long life from the appliance.

It is important to the application engineer to know in advance the load carrying ability of motors so that they may be applied with a minimum of cost and maximum of service continuity and dependability.

The standards likewise affect the electrical contractor who often makes application recommendation and who has to install the proper size and type of wiring, operating and protec-

Table I—Standard Breakdown Torques

Small power single phase induction motors shall be rated primarily on the basis of breakdown torque. The value of breakdown torque for the purpose of defining horsepower rating shall fall within the following ranges:

Revolutions Per Minute						
3600 3450	3000 2850	1800 1725	1500 1425	1200 1140	900 Synchronous Rpm 850 Approx. F.L. Rpm	
Breakown Torque Oz—Ft						Brake Hp Rating
2.0—3.7	2.4—4.4	4.0—7.1	4.8—8.5	6.0—10.4	8.0—13.5	1/20
3.7—6.0	4.4—7.2	7.1—11.5	8.5—13.8	10.4—16.5	13.5—21.5	1/20
6.0—8.7	7.2—10.5	11.5—16.5	13.8—19.8	16.5—24.1	21.5—31.5	1/8
8.7—11.5	10.5—13.8	16.5—21.5	19.8—25.8	24.1—31.5	31.5—40.5	1/6
11.5—16.5	13.8—19.8	21.5—31.5	25.8—37.8	31.5—44.0	40.5—58.0	1/4
16.5—21.5	19.8—25.8	31.5—40.5	37.8—48.5	44.0—58.0	58.0—77.0	1/3
21.5—31.5	25.8—37.8	40.5—58.0	48.5—69.5	58.0—82.5	....	1/2
31.5—44.0	37.8—53.0	58.0—82.5	69.5—99.0	....	....	3/4
44.0—58.0	53.0—69.5	....	....	....	....	1

Note 1. Breakdown torque range includes the higher figure, down to, but not including the lower figure.

Table II—Service Factors

H.P.	Service Factor for General Purpose 40° C. Induction Motors
1/20	1.4
1/12	1.4
1/8	1.4
1/6	1.35
1/4	1.35
1/3	1.35
1/2	1.25
3/4	1.25
1 at 3600 RPM only	1.25

tive equipment. The power companies are also very much concerned with the standards covering performance, such as the service factors and motor starting current limitations so that they may provide an adequate source of power.

In the past, Mr. Spoor pointed out, the horsepower stamped on a fractional horsepower motor plate has not always been a true indication of the motor's load carrying ability since no adequate standard had previously been established to define horsepower rating in terms of speed and torque. Because of this lack of uniformity in rating, the motor of one manufacturer might drive a machine while a motor of the same type and horse power rating of another manufacturer might fail to operate it satisfactorily. The manufacturer who used small power motors as a component of his product was constantly required to test each manufacturer's motors on his device in order to determine their suitability. These new standards should obviate these difficulties.

In formulating these standards, careful attention was also given, Mr. Spoor said, to factors which would permit selection of proper control equipment and wiring. Effort has likewise been made to define the standards in terms which would afford maximum freedom in design progress and to establish values conforming closely to present terms, products, and practices.

A summary of the points covered in the new standards relating to rating, service factor and starting currents follows. Standards relating to motors for special uses, such as in the appliance field, will be released in November and December, Mr. Spoor said.

Horsepower Rating In Terms of Breakdown Torque

In the application of fractional horsepower induction motors, the motor should be selected with a breakdown torque which is sufficient to take care of the maximum peak load requirements of the application. Breakdown torque is the maximum torque which the motor will develop without an abrupt change in speed. In order that the new standards would be inclusive and serve to provide a definition of rating of any particular motor design, the complete range of breakdown torque was divided into bands for the various standard horsepower ratings. Such a series of torque values associated with corresponding horsepower rating provides a definite classification of any motor in terms of horsepower ratings.

The values shown in the accompanying table are the newly adopted NEMA standards for breakdown torque of single phase fractional horsepower motors. (See Table I.)

Load Carrying Ability

Fractional hp motors of the open 40° C. rise continuous rating, referred to as General Purpose Motors, have a lower temperature rise rating than certain motors designed for specific duty and load conditions which are rated 50° C. rise (open) or 55° C. rise (totally enclosed). These temperature rises are recognized by industry as the maximum compatible with long insulation life.

The users of fractional hp motors, when applying open 40° C. rise motors on specific applications and known load conditions have recognized that these motors may be safely operated continuously at loads greater than the hp rating on the nameplate. It became apparent that motor users desire recommendations from the motor manufacturers regarding the safe continuous overloads which would give the maximum safe operating temperatures of the open 40° C. rise motors, considering the inherent 10° C. margin of safety of these motors. This inherent overload ability is referred to as Service Factor.

Fractional horsepower motors, due to their physical size and value of

(*Continued on page 74*)

Table III—Starting Current Limits

Rated HP	Locked Rotor Current in Amperes	
	115 Volts	230 Volts
1/6 and smaller	20	10
1/4	23	11.5
1/3	31	15.5
1/2	45	22.5
3/4	61	30.5

Table IV—Standard Code Letters

Code Letter	KVA per Horsepower*
A	0 — 3.15
B	3.15— 3.55
C	3.55— 4.0
D	4.0 — 4.5
E	4.5 — 5.0
F	5.0 — 5.6
G	5.6 — 6.3
H	6.3 — 7.1
J	7.1 — 8.0
K	8.0 — 9.0
L	9.0 —10.0
M	10.0 —11.2
N	11.2 —12.5
P	12.5 —14.0
R	14.0 —and up

***Locked KVA per horsepower includes the lower figure, up to but not including the higher figure.**

Accounting for Contractors

4. What to Do with the Cash

By Guy M. Carson*

Receiving the cash is probably one of the most pleasant functions of conducting a business, but proper records of cash receipts is at the same time a most important part of the electrical contractor's business accounting system.

THIS ARTICLE deals principally with "Cash Receipts". The discussions and illustrations apply equally to the large or small contractor. The problems are the same. The only difference is size. Proper procedure is just as important to one as to the other.

If you have your own office force, bookkeeper or accountant, the method of accounting suggested in these articles is of vital importance to you.

If you have not yet arrived at the place where you have an office force, you must then either keep your own books or have some member of the family keep them. One other alternative is to have a regular bookkeeper or accountant keep them "part time". Many contractors have found it most satisfactory to get the services of a "part time" bookkeeper or accountant. Such a person may be employed elsewhere and do your work evenings and Saturdays.

There are also accountants who make such "part time" jobs a specIality. Any arrangement whereby a competent and experienced person keeps your books has certain advantages. We recommend it. It's not expensive, and it's a good set-up.

However, if you plan to do the work yourself or have a member of the family do it, that's O.K. It will make a business man out of some member of the family. These articles have typical entries and illustrations, and will, we hope, be instructive and helpful to the layman keeping a comprehensive set of books.

These articles are not intended, however, to teach the principles of bookkeeping; but to adapt a certain style of bookkeeping to the contractor's needs.

Cash Receipts

The method of keeping contractors' "Cash Receipts" and other records recommended herewith:

1. Is simple—yet complete.
2. Is easily kept in balance.
3. Shows how much was received from "contracting" operations.
4. Shows to what jobs these receipts apply.
5. Shows amount of income derived from retail sales or other special income.
6. Gives figures needed for figuring profit.
7. Gives figures needed for income tax.

One of the nice things about it is that you may have this information with or without a General Ledger. If you are a large operator and have a bookkeeper or accounting department, you will probably want to keep a General Ledger. But if you prefer, the totals of this "Cash Receipts" record may be carried forward until the end of the year. The footings at all times will tell you what your receipts have been and from what sources.

The old style method of keeping Cash Receipts was to enter everything in one column and then post

(*Continued on page 72*)

CASH RECEIPTS

MONTH OF April 19 4 -

DATE 194-	RECEIVED FROM	AMOUNT RECEIVED	DISCOUNT ALLOWED	ACCTS. RECEIVABLE JOB #	ACCTS. RECEIVABLE AMOUNT	✓	Retail Sales	Sales Tax	OTHER RECEIPTS EXPLANATION	✓	OTHER RECEIPTS AMOUNT	MEMO BANK DEPOSITS
Apr 10	B. L. Smith	50000		9	50000	✓						
12	M. + L. Realty Co.	490000	10000	8	500000	✓						
15	John Doe	64000		10	64000	✓						
15	H. + R. Salvage	360							Sale of Scrap		360	
16	1st Natl Bank	750000							Loan - 60 day		750000	
16	Sales - Retail Store	20400					20000	400				
17	Sales - Retail Store	61200					60000	1200				

Example of Cash Receipts Record referred to in accompanying text.

New Orleans Home Appliance Exposition Climax of Dealers' Postwar Plans

By W. A. Feuillan, Jr.*

THE FOLKS who sell electrical appliances and radios give every evidence of thinking more clearly, planning better, and doing business in a way that is the envy of other retailers, and the appliance dealers of New Orleans are no exception to this generalization. Such dealers and their merchandise have been in the spotlight, particularly during the vast Home Appliance Show, sponsored by the Electrical Association of New Orleans, and held in the New Orleans Municipal Auditorium from October 6th to 10th.

The appliance exhibit was one of the largest such exhibitions ever conducted. More than a hundred exhibit spaces were available, and the items on display covered the whole range of the appliance field.

Although the appliance show will bring together under one roof a tremendous exhibit of home appliances, the New Orleans buying public has already been treated to a comprehensive preview of their "appliance future" in the displays of the leading radio and appliance dealers. Some of these are dealers with many years of experience behind them; others are newcomers to the business; but all of them have opened attractive new display floors and facilities that promise much in business promotion when the full flood of merchandise becomes available.

Space here would not permit a pictorial tour through all of the dozens of attractive appliance stores of this city but in the following paragraphs we present, at least, a representative tour through six typical stores. These offer their wares in brand new, up-to-the-minute departments or stores, all completed since V-J day—some in the last ninety days.

One thing which marks all as smart merchandisers is the generous use of lighting, for general, localized, or accent illumination.

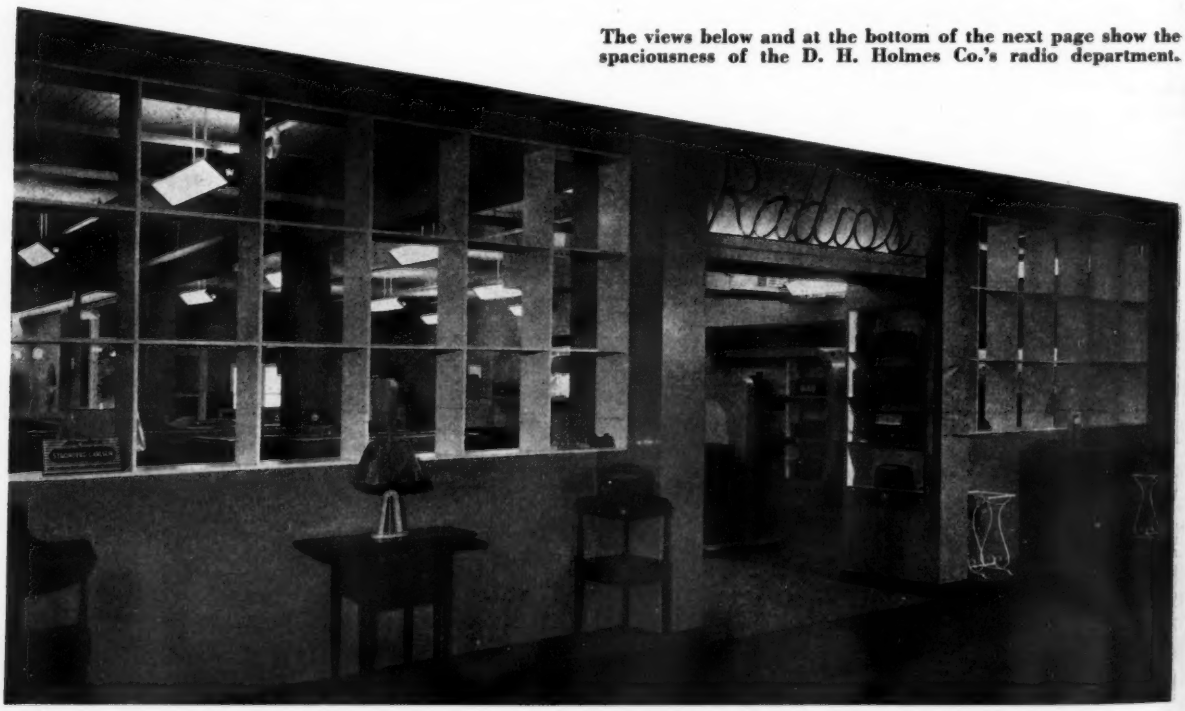
Our little journey starts at D. H. Holmes Co., Ltd., one of the largest department stores in the South. Our visit must be in two parts. The Radio-Record Department is on the fourth floor, the House Furnishing Section on the third.

As we leave the elevators, we approach what appears to be a giant show window. Its louvered front invites inspection, gives a glimpse of the promise within, yet separates the department from others on the floor. Backgrounds are in grayed blue, trim in pale ivory, with detail outlined in old rose.

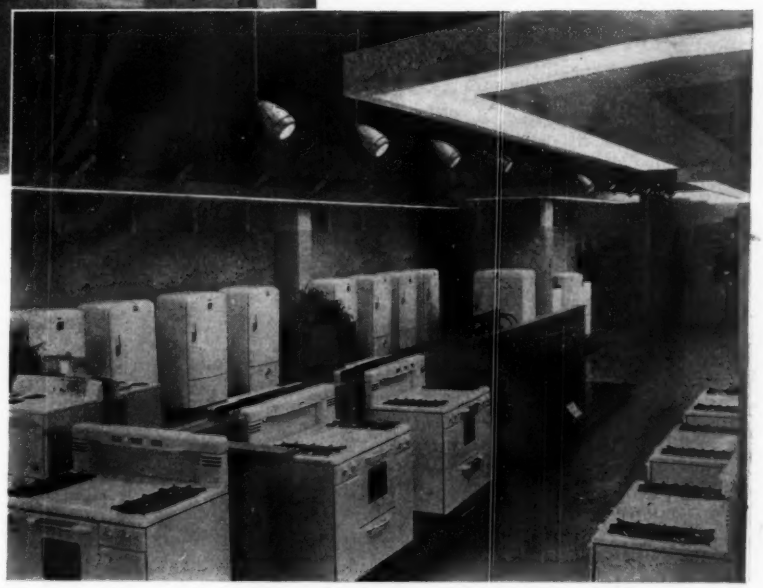
The lighting average 45 foot-candles, from "V" shape, glass-side fix-

*Mr. Feuillan is vice-president, Lighting Fixture and Electric Supply Co., Inc., New Orleans, Louisiana.

The views below and at the bottom of the next page show the spaciousness of the D. H. Holmes Co.'s radio department.



"Gay as a holiday" is how one writer has described the new ground floor appliance display space of Maison Blanche department store. Color scheme and lighting make this display one of the most effective in the South. Fluorescent lamps provide general illumination but appliances are spotlighted, as on a stage, by special incandescent spots. Major appliances are lighted to 65 or 75 foot-candles.



tures. Display here is good theatre. Modern pedestal, island and shelf grouping present radios by "lines." Each manufacturer is given a showing as complete as the availability of merchandise makes possible. The Record Aisle is flanked by a counter which takes up half its length on one side with easel album displayed racks and set niches for its remainder and on other side. Nationally advertised, brand merchandise is featured in keeping with store policy.

The House Furnishings Section is ultra modern. Our photographs can show but a small segment of an area larger than several stores. Eighteen island displays, departmentalize the section. Each presents one to three kinds of ware. Each is brilliantly illuminated by unique localized lighting from large, louvered overhead panels, masking banks of fluorescent tubes. General illumination is from glass enclosed fluorescent fixtures. Major appliances are shown in room-like settings at side and rear of the section. Delicate muted green and grayed rose seems an unusually effective background for new, shiny, white appliances. Stoves, refrigerators, washing machines are displayed in room-like groupings, brilliantly illuminated by louvered recessed fixtures, 300-500 watts, furnishing 35-50 foot candles.

Merchandise here is brightly spotlighted by recessed, louvered fixtures.

Both Miss L. Rider, manager, House Furnishing Section and Frank Blue, manager, Radio-Record Department, pointed out that our photographs visually confirm the store's announced plans detailed and discussed in a recent issue of ELECTRICAL SOUTH.

Our next stop is the Appliance Department of Maison Blanche, "Greatest Store South." Here is a ground floor shop as gay as a holiday. You feel refreshed as you enter. Backgrounds are soothing, restful. Walls are chartreuse and blued gray. The ceiling is the deeper blue of the sky at late evening.

It occupies a space about 45 x 60 feet but it seems larger. General illu-

mination is provided by mirrored reflectors in louvered, surface boxes, painted the color of the ceiling, and by fluorescent tubes back of long lines of fluted glass in projecting canopies on the display fixtures. But it is in emphasis lighting that this department is outstanding. Single and twin Dramalites are focused directly on major appliances, with each stove, refrigerator, etc., spotlighted, as on a stage. Foot-candle readings, on opening day, varied between 45-55 and 65-75, the lower intensities where small appliances and fans were shown, the higher where major appliances were displayed.

An interesting decorative element is the greenery of growing plants in ferneries planned and a part of the columns supporting the lighting canopies . . . bring in Spring! John H. Eberhardt is manager and H. H. Gilbert is assistant manager. The designing was by George LaBorde, architect, under the direction of Earl H. Rees, store manager.

A short walk out Rampart Street (formerly the rampart of the ancient

Located in New Orleans' Old French Quarter, The J & M Music Shop has retained the historic charm of the old building it occupies.

Many outstanding modern merchandising ideas have been incorporated in the display and methods of The Radio Center, one of New Orleans' newest appliance stores. Customer convenience receives top emphasis.

Although the exterior of J & M Music Company shown on the preceding page shows the historic charm of the old building occupied in the French quarter, these views of the interior show that merchandising plans and display are certainly among the most modern. The display area is attractively decorated and includes excellent light, averaging at least 50 foot-candles. The record department is one of the largest in the city and attracts much floor traffic.

The Radford Appliance Mart of New Orleans makes effective use of its show windows, especially at night. This night view of the store front shows how well each window stands out, giving special emphasis to the items on display. Thousands who pass this store each evening must find it difficult to forget that Radford sells "Home Appliances— Heating Equipment — Commercial Refrigeration — Sporting Goods."

city) in the Vieux Carre, the old square in literal translation, bring us to the J & M Music Shop, a happy combination of the old and the new. The architects, August Perez, and his associate, A. Schneider, have retained the historic charm of the two old buildings as you can see in our exterior view. The old iron-lace-work is noteworthy, but we need technicolor to do justice to the effective dusty rose-red so pleasantly contrasted by white and maroon trim, in which the buildings are painted.

Music, as is evident, is J & M's business. But appliances, as available, are and will be featured. General lighting is indirect fluorescent, from three giant rectangular penetrations in a suspended ceiling. Window walls are lighted by louvered, recessed reflectors, and merchandise is spotlighted by reflector bulbs in Swivelites. The average intensity is 50 foot-candles. The exterior color scheme is carried to the inside but lightened to a grayed or muted peach.

The Record and Sheet Music Department, one of the largest in the city, is the mecca for visiting musicians and local talent. The lighting here is especially good. The recessed louvered diffusing fixtures provide 55 plus foot-candles.

Our next stop is The Radio Center, on the way uptown. One of the owners of this "store of tomorrow" is a registered architect and incorporated in it dozens of modern ideas for display and customer convenience. You drive up here with a feeling of huge satisfaction. A private parking lot facing two streets provides space for 18 cars. Next you are intrigued by the slanted glass windows, designed for maximum visibility and to eliminate reflection. The wide, inviting entrance bids us welcome.

And the interior is all you'd expect. Smart display, tailored settings, flexible lighting are the last word. Displays are departmentalized, such as for small appliances including radios, combination radio - toasters, waffle irons, etc.; table radios, combination radio-phonographs and consoles; refrigeration; laundry equipment, including different styles of washers; home freezers; and electric and gas kitchen equipment.

Features of the store are a model kitchen and a model laundry, designed for demonstrations of appliances just as they would be used in the home.

A record department is equipped with sound-proof booths for the playing of records. Two separate service departments are operated, one for the large appliances, the other for smaller ones. Indirect neon lighting floods the off-white ceiling from a cove which encircles the room. Direct, accent lighting is furnished by recessed fluorescent troffers fitted with egg-crate louvers and from lens and louvered bottom reflector spots.

The color scheme here flows from olive green to blue to grey. You are conscious of the warmth of color but it is never obtrusive, rather blends in as background, to focus attention on merchandise.

The owners of The Radio Center, Loris K. Levy and George E. Marcuse, were respectively with Equitable Equipment Company here and in business at Colon, Panama before the war. Mr. Marcuse is a veteran of the New Guinea and Philippine campaigns.

Just a block from the Radio Center we turn into Washington Avenue. A few minutes drive out this busy street and we come to Radford Appliance Mart, housed in a magnificent building designed for appliance selling. Occupying a whole block of frontage, we are impressed by the fact that this showroom seems a gigantic window, with unbelievable quantities of merchandise on display. The interior is in white and soft gray. Illumination is unusually fine, from 5 continuous rows of 4 tubes each of soft white cold cathode. And cold cathode is used consistantly, in offices, conference rooms, etc. Even in the lounge and sleeping quarters for "visiting firemen," etc.

Radford specializes in refrigeration equipment and needs space to show walk-in coolers, frozen food cabinets, etc. which their new building so well provides.

Our photograph of the exterior, taken at night, to show the neon spectacular, confirms a happy choice of location, for thousands and thousands daily must pass this colorful reminder that Radford sells home appliances, heating equipment, commercial refregeration and sporting goods.

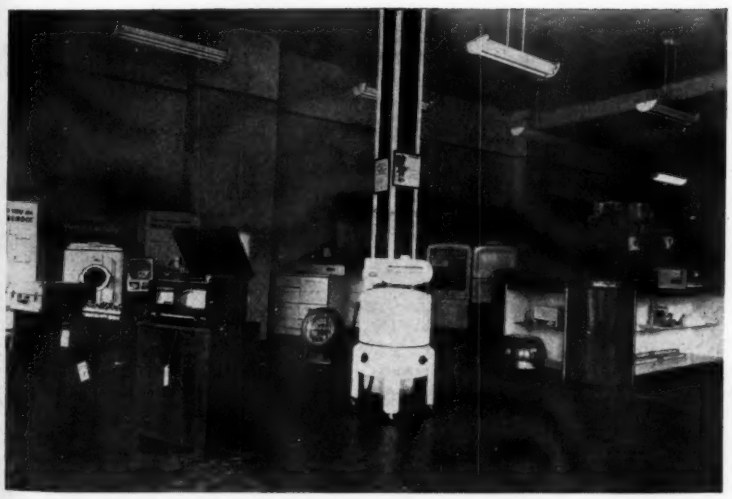
Our last stop is Simonds Radio and Appliances, a truly neighborhood store in aspect, in appearance, in friendliness, but one now doing a city-wide business—a business that is the envy of many larger, fancier establishments. (*See photos below.*)

Ernie Simonds, the head of the business, believes in nationally-known, brand merchandise and efficient service. He built his business on that creed, in a little "2 x 4," as he now says, residence shop. His present store is 60 x 70 feet, and, although in a converted semi-residential property, is the last word in efficiency. The display area is open, smart, up-to-date. Display are easy to reach, easy to see, which makes for easy buying, says Mr. Simonds.

The lighting, from conventional fluorescent fixtures, well spaced and properly hung, high out the line of vision, is good. There is an average of 40 foot-candles throughout the sales rooms.

Repair and service departments, warehouses, etc. are lighted with fluorescent in industrial fixtures to provide good illumination.

We leave with reluctance, but with a sense of accomplishment. We visited six stores,—dissimilar (in appearance), but very much alike (all quite successful, thank you) and we offer them as evidence that folks who sell electrical appliances and radios have something: astuteness, business-sense, or what-have-you, qualities which set them apart and make for success.



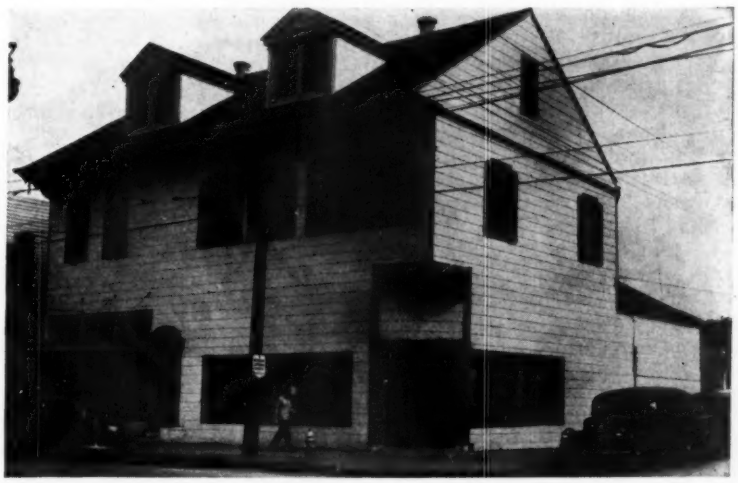
Certified Rating Basis For Selling Attic Fans

QUOTING ATTIC FAN installations on a "certified rating basis" instead of price, the Electrical Construction Company, Little Rock, Arkansas, has accomplished a far better volume of sales, according to owner E. C. Bragg.

"We have never sold attic fans or ventilating fans on price in any way," Mr. Bragg said, "Instead, if a customer comes in with a home of a certain type, and says that he wants a fan to do a certain job, we immediately look up the proper model, and present it to him on the basis that it will provide 18,000 cubic feet per minute, or 10,000 cubic feet per minute—whatever is indicated. We never mention price at all, merely pointing out that we are electrical contractors, familiar with all aspects of such installations, and leave it up to the customer's judgment to accept the attic fan we present."

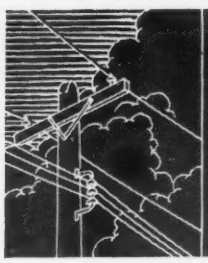
Carrying a generally high-priced line of attic fans, Mr. Bragg has put a certified rating label on each, which states merely that the fan will turn out a certain volume of air at a certain cost per day, and tells the customer that that is all he should worry about. "Actually, we have sold fans at a $185 to home owners who might have purchased a similar model with slightly less capacity for $50 less," Mr. Bragg said.

Currently, Electrical Construction Company is selling attic fans "as is" —contracting none of the installation work. At one time, Mr. Bragg used to accept the entire installation contract at a flat price, including wiring, carpenter work, installation, or whatever was required. This, of course, proved impossible through the war. Now, the company keeps a list of contractors on hand, who are referred to the customer, to make their own arrangements.

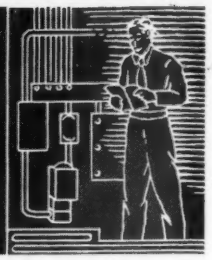


"This is a highly unsatisfactory situation," Mr. Bragg said, "I feel that the only way to do a 100% efficient merchandising job on attic fans is to handle the whole installation contract ourselves. In the past, through simply knowing our costs, even carpenter work turned out well—and we were certain that the fan installatin was one which would not bring forth later complaints."

Eventually, when a number of ex-servicemen being trained under the GI Bill of Rights are avaliable, and sufficient materials to handle contracts, Electrical Construction Company will again handle the entire job —selling service and maintenance at the same time.



NEWS BRIEFS OF THE INDUSTRY



New Rural Connections Reach All-Time High

A TOTAL of 1,070,000 residential and farm customers were added by the electrical power industry in the United States during the first eight months of 1946, despite the housing shortage and difficulties encountered in securing poles, wire and electrical equipment, the Edison Electric Institute reported today.

The phenomenal increase in customers connected since the end of the war notwithstanding the shortage of construction materials, has been amazing to utility executives and agreeably distorted the normal long term pattern of customer growth, H. S. Bennion, Managing Director of the Institute, said.

Data received from power systems throughout the country show that for the twelve-month period after V-J Day, 1,668,000 new customers of all classes were added to power lines; of this number 1,364,000 were residential and farm customers.

The twelve-month increase represents almost exactly the total number of customers to the lines of the power compaines during the first twenty-five years of the industry's growth, according to Mr. Bennion. Rapid acceleration of farm electrification, re-occupancy of vacant homesteads, reconversion of other structures into living quarters, new construction, and new business started by returned servicemen were major factors in the unprecedented gain in new customers.

The greatest rate of gain has occurred since the first of the year and if the present rate of 135,000 homes and farms connected per month continues throughout the year, the 1,600,000 new customers which will be added in 1946 will represent an all-time record.

The majority of the new customers have been added to the power lines in rural areas according to the Institute. In such localities new housing can be built more rapidly than in incorporated communities, where building codes afford less freedom to prospective builders. Increses in residential connections in South Atlantic, East South Central and West South Central States were 5½%, 7%, and 7½%, respectively, in comparison with the national average of 3½%.

Georgia Power Expansion Will Exceed $47,000,000

A NEW $47,000,000 electrical expansion program, bringing planned improvements by the Georgia Power Company to $99,000,000 to meet Georgia's growing industrial needs and to provide power for the State's farmers, was anounced by President W. E. Mitchell. The new $47,000,000 program is scheduled for completion by 1949.

This new expasion is in addition to the proposed $45,000,000 hydro-electric project at Clarks Hill, above Augusta, on the Savannah River, and the $7,000,000 project on the Oconee River, near Milledgeville, both of which are contigent upon approval of the Federal Power Commission.

In announcing the expansion, Mr. Mitchell said his company is "confident that today's trend of accelerated business and industrial activity in this State is no flash in the pan, but will continue for a long time."

According to Mr. Mitchell, this is how the company intends to spend the $47,000,000 which the new program calls for:

1. $15,000,000 for four new steam-electric generating units all scheduled for completion by the end of 1948. These units will add 145,000 kilowatts or more than 190,000 horsepower to the company's present generating capacity.

2. $32,000,000 for new distribution lines, new substations and for increased capacity of existing substations. This item calls for hundreds of miles of new transmission and dis-

EVENING DEMONSTRATIONS FILL STORE—For a lucky ticket giving the privilege of buying a Bendix automatic washing machine, Joe L. Sibley, owner of Sibley's at Kannapolis, N. C., packed his store for afternoon and evening Bendix demonstrations by Miss Delia Copley, home service director for Southern Appliances, Inc., of Charlotte, distributor for Bendix Home Appliances, Inc. The J. D. Graham family wasted no time in purchasing the washer. At the right is Mr. Sibley, who comments that his prospect list grew from this activity. "Show them and you sell them!" he says.

tribution lines throughout the company's territory.

3. $1,750,000 for new rural electric lines to serve the farmers of Georgia. This will add about 1,300 miles of rural electric lines in the State, and will complete the Company's program for main lines into rural territory.

Ingersoll Utility Unit Featured in Housing

INGERSOLL VILLAGE, in Kalamazoo, Mich., the World's Fair of postwar housing designed around the sensational new Ingersoll utility unit, was opened to the press recently and magazine editors were given an opportunity to view the twelve demonstration houses which are believed to bridge the gap between yesterday's experiments and tomorrow's realities in home building.

The houses were designed, built and paid for at the expense of Ingersoll Steel Division, Borg-Warner Corp., and were under construction and test for months while Ingersoll engineers satisfied themselves that the new heart of the home measured up to its drawing board concept and to the intricate mass production pattern of manufacture.

The Ingersoll utility units consolidate and integrate all essential utilities and appliances needed in the mechanics of living. With dies and jigs in a factory, all the plumbing, pipe lines, electrical wiring, heating, hot water and lighting elements are shaped, fitted and put into a steel framework on an assembly line. This steel framework is the basic central core of the Utility Unity for which Ingersoll supplies the appliances for the kitchen, laundry and bath, attachable by pre-engineered connections.

The central core forms a closed but accessible wall between the various parts of the household. It is only 30 inches wide and a home builder can roll it in through the front door of a house during any stage of construction. The core is 77 inches high and 90 inches long.

The houses shown at Kalamazoo were designed by famous architects to demonstrate the extreme flexibility of the unit in a variety of convential and contemporary designs—some of them extremely well known, others tending toward the modern. They are beautifully furnished and either lived in or ready to live in.

The Ingersoll utility unit rests on the main living floor in all the houses at Ingersoll Village. It is characteristic of the utility unit that it dispenses with the necessity for both basements and chimneys but does not prevent the home owner from having them if sentiment governs his housing desires.

Sales Training School Source of Employees

A TRAINING SCHOOL for new Carolina Power & Light Company salesmen, started recently is the first in a series to be held at three-month intervals and designed to increase the company's rural and residential, commercial, and industrial sales staff with competent, properly trained personnel.

The schools will be continued until the sales force is built up to give adequate coverage in CP&L territory.

Some eight new sales representatives attended the first course, which probably will last about three weeks. Upon completion of the course, the salesmen will be stationed at strategic localities throughout the company system, where they will devote their time to promoting the use of electricity among all types of customers.

The training school includes lectures on company organization and territory, development of the company, company policies, fundamentals of electricity, rates, water heating, refrigeration, residential lighting, laundry equipment, the electric range, small appliances, adequate wiring, competitive services, farm services, small appliances repairs, as well as group activities, sales training movies, and residential and dealer calls.

Instructors for the school are T. B. Smiley, residential and rural sales manager; E. N. Pope, advertising director; M. T. Dunlap, personnel director; H. G. Isley, general sales manager; Ross Reynolds, H. B. Hicks, Murray Bird, Mrs. Marguerite Surles, Maurice Todd, R. S. Martin, Ernest Fuquay, all members of the Sales Department.

NEW PRESIDENT—Louis R. Popp has been elected president and general manager of the Pierce Renewable Fuses, Inc., climaxing a business career with the company that began in 1925. His advancement from a cost clerk to chief executive reads like an Alger story. Here, Archie, the electrical man who has had a lot to say about fuse protection, congratulates his sponsor on becoming president of the company.

DATES AHEAD

National

National Electrical Contractors Association. 1946 Annual Meeting. Ritz Carlton Hotel, on the Boardwalk, Atlantic City, New Jersey. Convention, October 15, 16, 17, 1946.

Western Section IAEI, Gibson Hotel, Cincinnati, Ohio. Oct. 21, 22, 23, 1946. F. H. Moore, Secretary, 320 N. Meridian St., Indianapolis 9, Ind.

National Electrical Retailers Association Meeting, Stevens Hotel, Chicago, Ill., October 25, 1946. C. C. Simpson, Managing Director, 1304 Eye Street, NW, Washington 5, D. C.

Eastern Section IAEI, Mark Twain Hotel, Elmira, N. Y. Oct. 28, 29, 30, 1946. F. N. M. Squires, Secretary, 85 John St., New York 7, New York.

National Electrical Manufacturers Association. Annual Meeting, Marlboro-Blenheim and Claridge Hotels, Atlantic City, N. J. Week of October 28, 1946.

All-Industry Refrigeration and Air Conditioning Exposition, Cleveland Auditorium, Cleveland, Ohio. October 29-November 1, 1946.

Electrical Engineering Exposition. 71st Regiment Armory, Park Avenue and 34th Street, New York, N. Y. January 27-31, 1947.

Southern

Southern Section IAEI, George Vanderbilt Hotel, Asheville, N. C. Oct. 14, 15, 16, 1946. A. M. Miller, Secretary, 910 West 30th St., Richmond 24, Va.

Accounting Section, Southeastern Electric Exchange, Fort Sumter Hotel, Charleston, S. C., Oct. 17-18, 1946. J. W. Talley, Executive Secretary, 303 Haas-Howell Bldg., Atlanta, Ga.

General Sales Conference, Southeastern Electric Exchange, Atlanta Biltmore Hotel, Atlanta, Ga., Nov. 6-8, 1946. J. W. Talley, Executive Secretary, 303 Haas-Howell Bldg., Atlanta, Ga.

Virginia Chapter, International Association of Electrical Inspectors, 13th Annual Meeting, John Marshall Hotel, Richmond, Va., Dec. 3 and 4, 1946. A. M. Miller, Secretary, 910 W. 30th St., Richmond 24, Virginia.

Sylvania Southeastern Office Relocation

SALES OFFICES of the Southeastern Lighting Division of Sylvania Electric Products Inc. have been relocated at 1223 William Oliver Building, Atlanta 3, Georgia, according to an announcement made by Hugh Saussy, Southeastern sales manager.

In their new quarters, Mr. Saussy explained, Sylvania Electric intends to expand the sale of its lighting products which include a complete line of incandescent and fluorescent lamps, fuorescent fixtures and auxiliaries and speciality lamps such as infra-red, blacklight and germicidal. Old offices were located at 681-685 Whitehall Street, S. W., Atlanta.

Mississippi Power Gets New 30,000 Kw Plant

THE CONSTRUCTION of a 30,000 kilowatt steam-electric generation station by Mississippi Power & Light Company, some five miles north of Jackson, at an estimated cost of $4,500,000.00, was announced recently by Rex I. Brown, president of the company.

This generating station will be constructed near Tripp's Crossing Road, close to the Mississippi Power & Light Company's present 110,000-volt North Jackson Substation. It will follow the semi-outdoor design which includes a minimum of housing, will use natural gas and will receive its water supply from two deep wells of 500-gallon per minute capacity. Ground will be broken and construction will begin in the very near future. Present plans anticipate that the plant will be in operation by mid 1948.

The station will consist of one 30,000 kilowatt, 13,000-volt steam turbine generator unit and one 350,000 pound-per-hour outdoor type gas-fired steam boiler with oil standby facilities.

The annual output of the station if operated at full capacity would be approximately 275,000,000 kilowatt hours of electricity. The entire plant is designed for multiple units, which makes future expansion practical and economical.

In discussing this major construction project by Mississippi Power & Light Company, President Brown said, "The new 30,000 kilowatt generating station is a part of the Company's $20,000,000.00 expansion and improvement program that is affecting each of the 319 communities and all of the 42 counties it serves. The plant was located at the 'heart' or 'nerve center' of the Company's modern 110,000-volt interconnected transmission system after careful surveys of 'loads' and other factors by our own and consulting engineers. The plant will be an important stabilizing factor to our entire system, which now has eight major sources of power supply in Arkansas, Louisiana and Mississippi including large generating units at Sterlington, and New Orleans, Louisiana, and at Little Rock and Remmel and Carpenter Dam in Arkansas."

Lowry Is Elected Head Of Florida Contractors

JAMES R. LOWRY, of Coral Gables, Fla., has been elected 1946-47 president of the Southern Florida Chapter of the National Electrical Contractors Association. Mr. Lowry, who was vice-president last year, succeeds Nate Bauer.

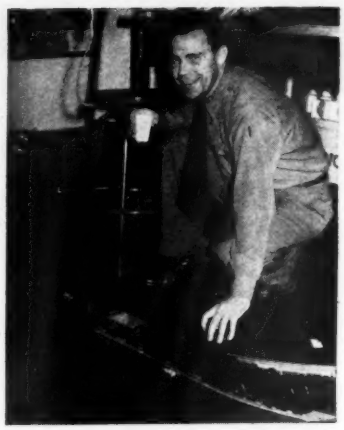
Other officers elected are Harry W. Ferguson, vice-president; Francis C. LaVigne, secretary-treasurer; Daniel J. Abbott, Willard W. Ingalls and Eugene F. Holland, directors; and Fred H. Stewart, district governor.

Gable New President Texas Chapter, NECA

AT ITS REGULAR membership meeting held July 15, the northeast Texas Chapter of the National Electrical Contractor's Association named Henry Gable president, succeeding Jim L. McClure, who served three years in that office.

George Harris, who has been a director, was made vice-president, succeeding Edwin Roos. C. M. Cockrell, Sr., was renamed treasurer, and Lawrence E. Martin continues as the chapter's secretary-manager.

Mr. McClure was re-elected to serve on the Board of Governors of the NECA and was made a member of the board of directors of the chapter. Other members of the board are T. C. Sands, George Harris and Roy A. B. Allen. Gable is the board's chairman.



Henry Gable

Henry Gable was born in Dallas 37 years ago. He received a degree in Engineering from Southern Methodist University in 1931, and in 1932 opened his own electrical shop, Gable Electric Service, 6713 Snider Plaza. His father, H. E. Gable, former superintendent of schools in Highland Park, is now associated with Gable Electric Service in connection with the merchandising of electrical appliances.

Complete Entertainment Instrument Is Planned

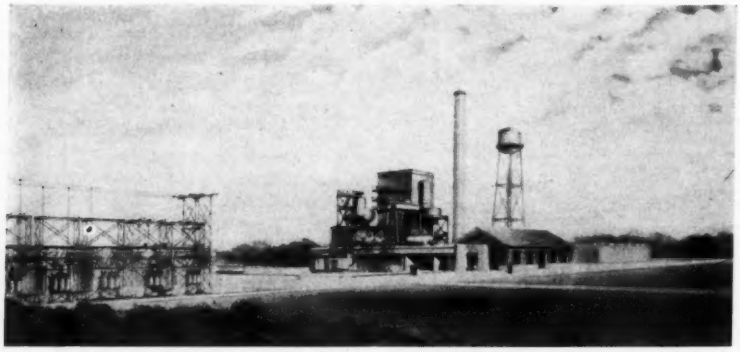
AN ALL-PURPOSE home entertainment instrument, combining television, frequency modulation, standard broadcast, and a record-player, will be produced next year by the Receiver Division of the General Electric Company.

Annoucement of plans to market this complete unit, which will sell for approximately $475, was made by Paul L. Chamberlain, manager of sales for the division, at a special sales meeting of district managers of the Electronics Department.

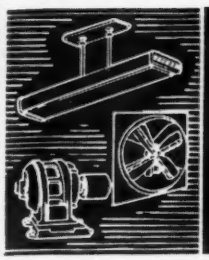
This model will be equipped with a ten-inch picture tube affording a picture of approximately eight inches wide by six inches high and will be able to tune in all 13 television channels without the need of service work, Mr. Chamberlain said.

In addition to AM reception, this model will receive FM on the new frequency band and will also have an automatic record player in the phonograph.

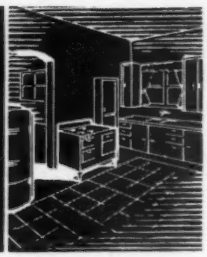
Mr. Chamberlain said the company plans to market four television receivers by next year. They will range from table model to $1200 deluxe.



Artist's drawing of the 30,000 kilowatt $4,500,000 Mississippi Power & Light Company, REX BROWN Steam Electric Station to be erected just North of Jackson at the "nerve center" of this Company's 110,000-volt electric transmission center.



ELECTRICAL PRODUCT PARADE



1001—New Electric Range

Manufactured by A. J. Lindemann & Hoverson Co., Milwaukee 7, Wis.

THIS NEW range, No. 8810C, features a balanced front, divided top, switches and controls on back-guard, one 2100-watt giant, two 1250-watt regular size surface units, and a 6-quart handy cooker with inset pan and French fry basket. All are controlled by indicating switches. This range has Fiberglas insulation, two service drawers, Wilcolator over temperature control, inner oven light and two oven units.

Range lamp with automatic time control operating both oven and appliance outlet, or lamp with interval timer, are optional.

* * *

1002—Kelvinator's Freezer

Manufactured by Nash-Kelvinator Corp., Kelvinator Div., Detroit 32, Michigan.

TRIMLY STYLED and engineered for beauty and maximum storage space, this home freezer will hold more than 210 pounds of frozen foods. It is 36 inches high and has a full-width lid, safety-fitted with a convenient trunk-type support.

The interior is divided into two sections by a removable metal grid. The bottom surface of the smaller section is refrigerated to provide extra-fast freezing but may also be used as storage space. The remainder of the storage space in the cabinet is maintained at an average of 0° for long-range food protection.

The freezer has a one-piece welded exterior of rust-proof steel, with thick Fiberglas insulation completely sealed in. Walls have 4 inches of Fiberglas and the lid has 2¼ inches. It is powered by Kelvinator's sealed Polarsphere condensing unit.

* * *

1003—Telex Pillow Speaker

Manufactured by Telex, Inc., Telex Park, Minneapolis, Minn.

DEVELOPED principally to bring entertainment and enjoyment to combat convalescents in hospitals, the Telex speaker will soon be available for civilian use.

This electromagnetic sound generating unit is designed for normal sound reproduction when placed under a pillow, or as a personal radio soft speaker without the use of headphones. The unit is completely enclosed, weighs only five ounces, and is sensitive enough to permit the use of very low audio voltage. The speaker is shock proof and water proof in its hermetically sealed plastic case.

* * *

1004—Arvin Radio

Manufactured by Noblitt-Sparks Industries, Inc., Columbus, Ind.

THE NEWEST of the Arvin radio table models, 555, is expected to be

Oct. 1946

Electrical South
1020 Grant Building
Atlanta 3, Ga.

Please send me additional information on the following New Electrical Products described in this issue:

No...... **No.**..... **No.**..... **No.**..... **No.**.....

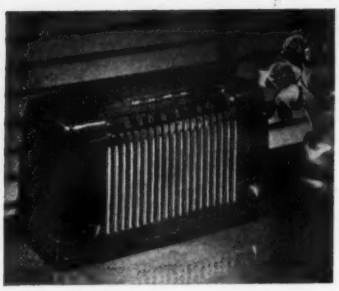
Name.....

Company.....

Position or Title.....

Street Address.....

City.....**Zone**....**State**.....



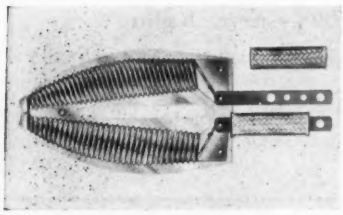
on the dealer's shelves and counters in early October.

This new model comes in walnut finish plastic and its companion model comes in ivory plastic. A feature developed for this model is the "piano key" type of automatic station selectors, which blend smoothly into the contour of the cabinet. Other features of this radio are increased power output, good sensitivity and selectivity, and a one piece cabinet known generally as the bottom loading type.

* * *

1005—Iron Replacement

Manufactured by St. Clair Electric Products Co., St. Clair, Michigan

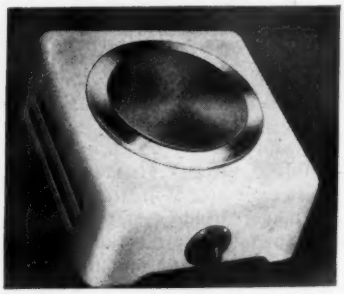


A NEW long life flat iron replacement element to fit 90% of all electric irons is now available. The "Clairel", because of its universal design, makes possible its installation in virtually all makes and models of flat irons of from 5 to 6 pounds, inclusive. The installation requires a minimum of skill, tools and labor.

Heavy die-cut mica forms are wound with flat Chromel or Nichrome resistance wire for 600 watts on 110 to 120 volt a-c or d-c service. Thick mica protector sheets are machine-riveted to both sides of the heater coil sub-assembly providing full insulation from contact with the flat iron frame. A slot through the center of the element permits easy alignment of the element with the frame and clamping screw during installation. The extra long brass terminal leads are rigidly attached to the heater element and are punched with a series of four holes each to accomodate various sizes and types of receptacle mounts.

1006—Chromalox Hot Plate

Manufactured by Edwin L. Wiegand Co., 7600 Thomas Blvd., Pittsburgh 8, Pa.



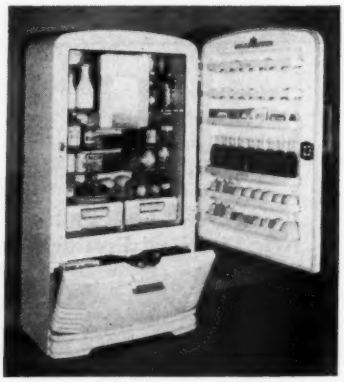
THIS HOT PLATE is equipped with a Heatflo range unit which has a flat solid surface permitting rapid transfer of heat by contact. The heating coils are of high quality nickel-chrome alloy and are embedded in Chromolox refractory which is in direct thermal contact with the under side of the heating unit.

The frame is a one-piece, heavy gauge metal stamping furnished in durable, acid resisting, white porcelain enamel. The smooth lines make it easy to clean.

* * *

1008—Crosley "Shelvador"

Manufactured by The Crosley Corporation, Cincinnati 25, Ohio.



CROSLEY'S new 1946 nine foot "Shelvador", now being delivered throughout the country, continues the company's theme "Twice as much food to the front within easy reach."

The patented Shelvador, an exclusive Crosley feature, contains six aluminum shelves in the door, specially designed to hold such items as fruits, bottles, processed foods, and eggs. The cabinets are all steel fused, rustproofed, one piece construction, and finished with two coats of durable Dulux enamel. The oversized freezer provides storage space for fresh frozen foods, meats, ice cream, and extra ice cubes. 10 to 14 pounds of meat can be kept in the giant porcelain meat chest.

* * *

1007—Permalite Switch Light

Manufactured by the Universal Microphone Co., Inglewood, California.

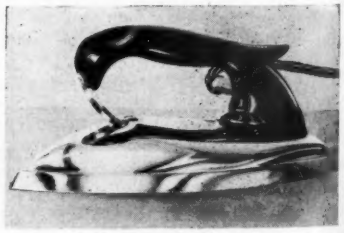
GLOWING at all times when the lights are "off", the Permalite switch light eliminates fumbling in the dark for the light switch. This new type light switch provides a soft glowing red light claimed to operate on only 1c of current per year.

The switch consists of a tiny, electronic bulb built into the top of a durable translucent plastic wall plate, designed to fit standard single switch outlets. It operates on standard 110 volts, a-c or d-c, and, according to the manufacturer, can be installed with use of an ordinary screwdriver in a few minutes.

* * *

1010—New "Champion" Iron

Manufactured by Landers, Frary & Clark, New Britain, Conn.



DESIGNED for faster ironing and with a fully automatic "Hand-i-set" fabric dial, the "Champion" features anti-fatigue balance.

This iron has a rounded, wrinkle-proof heel which protects the fabric

FOR SAFETY'S SAKE . . . USE CONDUIT *(Full Weight Rigid Steel)*

There is only ONE safest wiring system

THERE just isn't any argument against "safety" in electrical construction. When you're putting wiring in a hazardous location, where there's apt to be moisture, or vapors, or dust, there can't be any argument about what system is safest.

As every contractor knows, for such places the National Electrical Code specifies rigid conduit. And in such places a majority of contractors have for years been installing Youngstown "Buckeye." It is the world's most widely used standard-threaded, full-weight, rigid steel conduit.

Now, as you replace temporary, emergency wiring, as well as install systems in new construction, you naturally want to employ only dependable materials and proven-safest methods. In conduit, "dependable" means "Buckeye."

Local distributors have "Buckeye" conduit now. Our nearest District Office will gladly supply their names.

BUCKEYE YOUNGSTOWN CONDUIT

YOUNGSTOWN

THE YOUNGSTOWN SHEET AND TUBE COMPANY

GENERAL OFFICES - YOUNGSTOWN 1, OHIO

Export Offices - 500 Fifth Avenue, New York City

Manufacturers of

CARBON - ALLOY AND YOLOY STEELS

Ask your distributor for:
Youngstown Buckeye Conduit...Pipe and Tubular Products...Sheets...Plates...Electrolytic Tin Plate...Coke Tin Plate...Bars...Rods...Wire...Tie Plates and Spikes

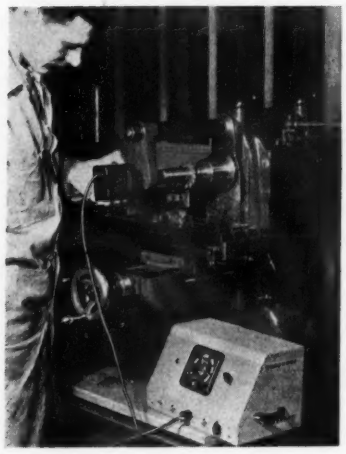
from "back-stroke" wrinkles and has a beveled point which slips easily under buttons. This one-piece solid heel rest permits the iron to stand on end when not in use.

The "Champion" has an oversize, precision machined cast iron alloy sole plate with chromium surface to ensure lifetime smoothness. It is rated at 1000 watts and operates on a-c only.

* * *

1009—Electronic Tachometer

Manufactured by General Electric Company, Apparatus Department, Schenectady, N. Y.



THIS NEW electronic tachometer, designed for measuring rotating speeds from 300 to 50,000 rpm, weighs only 19 pounds and is useful for production testing of equipment instantaneously without the necessity of permanent attachments. Speeds of electric motors, machine tools, automotive and aircraft engines, pumps, fans, blowers and other types of rotating equipment can be quickly measured.

The unit consists of a small pick-up head, six feet of flexible cable, and a measuring unit with a panel-mounted indicator which reads directly in rpm. Low or high-speed heads can be used with this tachometer.

* * *

1011—Guth Recessed Troffers

Manufactured by The Edwin F. Guth Company, 2615 Washington Blvd., St. Louis 3, Mo.

SPECIAL knock-outs in the ends of the new recessed troffer make possible accurate 48.0" lengths. These knock-outs permit lampholders to be inset in ends so that they are flush with the outside surface of the closed ends. Because of this feature, the Troffer requires no more ceiling length than the fluorescent lamp and lampholder. This unit will fit exactly in the exacting openings, provided in ceilings of standard building blocks or tile.

The complete unit comes ready to install, eliminating unnecessary assembly costs. Accessories for the Guth Troffer make possible the exact kind of illumination required in a lighting system. These accessories include baffles, two types of eggcrate louvers, and both flat and formed-glass panels. This unit has built-in attachment features for all accessories providing for quick, easy changes.

* * *

1012—Portable Time Switch

Manufactured by Miller-Harris Instrument Co., Milwaukee 6, Wisconsin.

THE ROBOT, a portable time switch, is a neat little electric mechanism that turns things on and off at exactly the time you desire on a 24-hour schedule. It will wake you up to music, start your electric coffee percolator, control your roaster, defrost the refrigerator, protect you from burglars and perform many other jobs.

This device controls any household appliance that can be plugged into an electrical outlet. It is an electrical time instrument—not an ordinary electric clock with a switch added. The 24-hour dial has two pointers which can be set to turn appliances on or off at specified times. It is about three inches wide and five inches high and comes in an attractive metal and plastic case. The cord may be plugged into any electrical wall socket and the appliances to be actuated are then plugged into a socket in the device.

* * *

1014—Borden Groundometers

Manufactured by Borden Electric Company, Summit, New Jersey.

THE GROUNDOMETER is a testing outfit especially designed for measuring the resistance of the path through which an electric current must flow when lead into the earth via a ground rod, pipe, or other earth electrode.

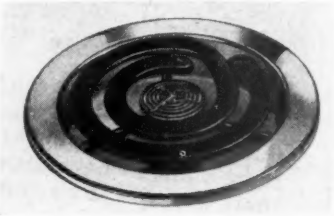
The Type X Groundometer outfit is simple and convenient to use since it requires no ground rod and necessary spacing is measured by the test leads themselves. There are no computations to make. Measurements as low as a tenth of an ohm may be made with a guaranteed accuracy of five hundredths plus or minus. To do this, even in high resistance soils, requires the use of only the small duplex electrodes furnished with the outfit. All measurements up to 1000 ohms are accurate within one scale division.

Complete details may be obtained in Bulletin No. 160 from the manufacturers.

* * *

1026—Thermo-Kleen Monotube

Manufactured by Tuttle & Kift, Inc., 1823 North Monitor Ave., Chicago 39, Ill.



THIS NEW DEVELOPMENT in a surface heating unit for electric ranges utilizes a single anchorage and is constructed of but a single coil. The unit cannot warp or distort—staying perfectly flat for greatest cooking efficiency. It tilts completely out of the way for easy cleaning. Standard laboratory tests equivalent to 15 years of normal service revealed no deviation in the flatness of the coil.

Available not only to manufacturers for new range equipment, the unit will later be supplied to dealers for replacement installation.

* * *

1019—Lighting Booklet

Available from the Westinghouse Electric Corporation, Bloomfield, N. J.

INFORMATION for designing interior lighting installations is contained in this new 8-page folder. Easily-read tables cover popular types of luminaires, lamps and ballasts.

Special emphasis is placed on maintenance with a range of values being given for each luminaire. This will enable the designer to make an intelligent estimate of the depreciation which may be expected under good, medium and poor maintenance conditions.

Now Ready for Delivery

VAL-LITE

(PATENT PENDING)

INDIRECT

Fluorescent

VALANCE

LAMPS

The new achievement of indirect fluorescent lighting combined with the charm and character of custom-made window valances, offers increased efficiency, eye comfort and safety to homes, apartments, hotels, office buildings and hospitals where adequate illumination and decorative beauty for individual rooms are essential

Either plain or pattern wood moulding

Gives Daylight at Night

INEXPENSIVE

VAL-LITE is economically priced—easy to install—requires no special wiring—connects to nearest floor plug.

EFFICIENT

VAL-LITE is scientifically constructed to electrical specifications to give low cost lighting of highest efficiency.

GUARANTEED

VAL-LITE is guaranteed against any defects in material or workmanship. The functional design and artistic merit have been approved by authorities.

Immediate shipment to better dealers throughout the South

Write for folder and full information

VAL-LITE SOUTHERN, INC.

1720 PEACHTREE STREET, N. W. PHONE AT. 1392 ATLANTA

Catalogs, Bulletins and Technical Data Available to Readers of Electrical South

109—Hanger Outlets and Floor Boxes. Bulletin No. 72 is a new bulletin recently issued by Frank Adam Electric Co., St. Louis, Mo. Various type hanger outlets and floor boxes are illustrated and described in the bulletin, and the list price of each is given. A new addition to the line of hanger outlets, the Clock, is also described in a special insert.

110—Quikheter. The advantages of the new built-in type electric Quikheter are discussed in Bulletin No. 73, of the Frank Adam Electric Co., St. Louis, Mo. Outstanding features of the Quikheter, such as its beautiful chromium finish front and its genuine Michrome wire heating element which should never wear out under normal operating conditions, are described, and illustrations show the Quikheter brings warmth into every room.

111—Electronics Digest. Recording the latest developments in electronics at work, the new "Electronics Digest" which includes articles on Stratovision, Mot-O-Trol, fluorescent light, electrolytic tin plating, X-ray inspection, and electrostatic air cleaning is announced by the Westinghouse Electric Corporation, Box 868, Pittsburgh, 30, Pa. The 50-page illustrated booklet, (B-3726), is published quarterly.

112—Modernization Guide. Concentrating on plans for improving the most inefficient parts of the wiring system in the home, General Electric Company's Appliance & Merchandising Department, 1285 Boston Ave., Bridgeport 2, Conn., announces a 20-page Electrical Modernization Guide. It is designed to overcome the conception of electrical modernization as an inconvenient and expensive job. Highlight of the booklet is a description of the add-a-circuit program for rewiring.

113—Airport Equipment Booklet. Typical lighting plans and wiring diagrams for all classes of airports are included in a new 56-page booklet "Airport Electrical Equipment" (B-3573) announced by the Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. Designed to met CAA and Army and Navy standards, equipment listed and described in the booklet is also keyed by symbols to wiring diagrams and lighting layouts in the plan sections, to assist airport engineers in meeting specific requirements for any type of airport operations.

118—Theater Lamp Booklet. Westinghouse Lamp Division, Bloomfield, N. J., announces a new 32-page illustrated booklet, (A-4575), which gives detailed information covering the selection, use and maintenance of lamps for all theater applications, emphasizing particularly the new fluorescent circline and slimline lamps. It contains two dozen large architectural pencil renderings and 90 small lighting application and idea drawings. Six tables in the back of the book are specially designed to fit the needs of the theatrical industry and to aid in ordering lamps.

120—Tachometers. The Herman H. Sticht Co., Inc., of 27 Park Place, New York 7, New York, has recently issued condensed bulletin No. 1045 showing nine different types of tachometers which can be supplied by the Sticht firm. This bulletin shows a large amount of tachometers including portable and stationary types, single and multiple ranges, domestic and imported Swiss tachometers.

121—Unit-Fans. The 1946 catalog and application guide has been issued by Read Unit-Fans, Inc., New Orleans, La. Designed so that by adding various attachments, this fan can serve all purposes and uses—for installation as window fan, attic fan, portable floor fan, and all commercial exhaust fan installations—the dealer has only to stock basic fan models in the different sizes to serve this wide variety of uses. Descriptions and illustrations of the fans are presented clearly in the new catalog.

122—Connector Manual. Anderson Brass Works, Inc., Birmingham 1, Alabama, announce their new complete manual "Anderson Brass Connectors," Catalog 105, is ready for distribution. The complete line of Anderson bronze electrical connectors is discussed in up to date and specific facts. A detailed technical section—28 pages of tables, formulae, and information—make this a valuable, reliable data source for the electrical engineer. Dimensions and shipping weights are given on all items, and the manual is cross-indexed with items grouped alphabetically and pictorially by sections and types. The catalog is desk-size, measuring 9 x 11 inches, and containing 184 pages, permanently bound.

123—Window Fan. A new catalog, "Bar-Brook Window Fans" has been issued by the Shreveport Engineering Company, 1553 Texas Ave., Shreveport, La. This catalog shows illustrations of the Bar-Brook design to be used in offices, apartments and small homes.

124—Midget Metal Base Relays. A new bulletin, No. 104, has been issued by the Ward Leonard Electric Co., 31 S. St., Mt. Vernon, N. Y. This bulletin describes how midget metal base relays are designed for use in small radio transmitters, aircraft control circuits and applications where space is limited.

125—Industrial Fluorescent Fixtures. Day-Brite Lighting, Inc., 5411 Bulwer Ave., St. Louis 7, Mo., has issued Bulletin 30-A which contains complete specifications for each type "Day-Line" industrial fluorescent fixture: single units and continuous systems for two 40-, three 40-, and two 100-watt lamps; detailed data on installation, accessories and servicing; list prices and charts for figuring footcandle intensities.

126—Reed Unit-Fans. A new 16-page booklet on unit-fans has been published by Reed Unit-Fans, Inc., 1001 St. Charles Ave., New Orleans 8, La. This booklet describes the design of the Reed reversible unit-fan and how by adding various attachments it serves all purposes and uses—for installation as a window fan, attic fan, portable floor fan, and all commercial exhaust fan installations.

127—Switch and Receptable Plates. A catalogue page describing a new line of switch and receptacle plates of pure aluminum that can be painted over with wall paint has been issued by D & M Mfg. Co., 79 W. Peachtree Place, N. W., Atlanta, Ga. These plates are breakproof, rust-proof, and conform to rough walls.

128—Fluorescent Fixtures. An 8-page catalogue has been prepared by Mitchell Mfg. Co., 2525 N. Clybourn Ave., Chicago 14, Ill. The catalogue includes a complete description of the various types of commercial fluorescent luminaires for use in offices, stores, schools, public buildings, institutions, etc.

129—Anti-Corrosive Paints. Literature has been published by Subox, Inc., 348 River Rd., North Arlington, N. J., on their Subox and Subalox paints used in generating, transmission, and distribution construction and maintenance. Both paints are based on a colloidally dispersed and amorphos pigment of suboxide of lead which is so chemically active that weathering increases its rust-inhibitive properties as well as its hardness.

130—Buzzer and Push Button. The Wm. J. Murdock Co., Chelsea, Mass., has prepared a catalogue page which shows actual size illustrations of their new "Tone-Right" buzzer and push buttons.

131—Lighting Bulletin. A 4-page bulletin (2169) describing briefly the various fluorescent and incandescent lighting equipment now being sold to the trade has been issued by Curtis Lighting, Inc., 6135 W. 65th St., Chicago 38, Ill. Individual specification sheets on various fixtures are included.

132—Controlling Apparatus. A binder including descriptive bulletins and listings on electrical controlling and distributing apparatus such as safety switches, light and power panelboards, switchboards, and bus duct systems has been published by Bull Dog Electric Products Co., Detroit 32, Mich.

133—Tru-Heat Automatic Iron. A specification sheet which completely tells the story of the new General Mills Tru-Heat Automatic Iron has been published by General Mills, Inc., Homes Appliance Dept., 1620 Central Ave., Minneapolis 13, Minn. This sheet gives illustrations of and describes the exclusive features of this iron which make ironing faster, easier, safer and better.

134—Terminal Lugs. A new bulletin, No. 8-DF, issued by Krueger & Hudepohl, 5 East Third St., Cincinnati 2, Ohio, illustrates the larger size terminal lugs and describes folding double cupped washer lugs with and without insulation grip, with large and small screw holes for standard stranded, extra-flexible stranded and solid wire specifications.

ELECTRICAL SOUTH,
1020 Grant Building, **Oct. 1946**
Atlanta 3, Ga.

Gentlemen:

Please send me bulletins indicated below.

No..... No..... No..... No..... No.....
(Print Plainly)

Name.....Title.....

Company.....

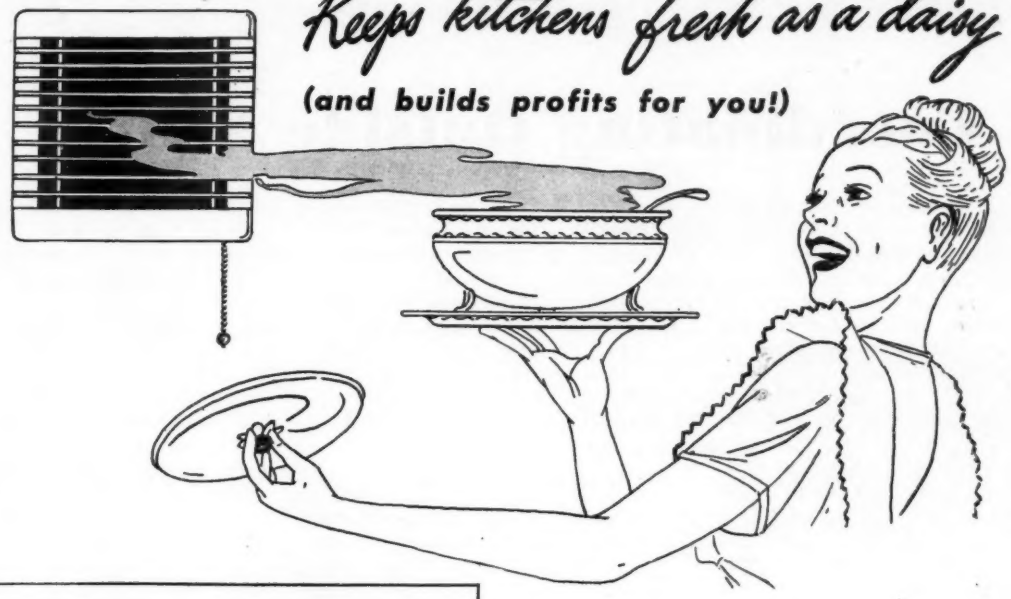
Address.....

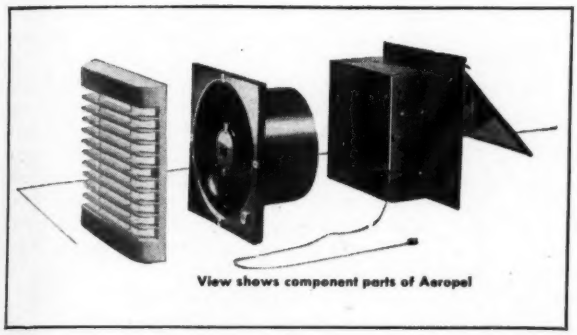
City & State.....

Aeropel

Keeps kitchens fresh as a daisy

(and builds profits for you!)





View shows component parts of Aeropel

You'll find that housewives love the new Aeropel Home Ventilator because homes stay cooler and cleaner. Aeropel whisks out cooking odors, greasy fumes and smoke.

Appearance is modern—with a spotless white plastic grille. Operation is super-quiet.

You'll appreciate the easy, fast installation in both old and new homes. Styling harmonizes with *all* kitchen plans—and there are many other sales opportunities for Aeropel in bedrooms, bathrooms, nurseries, laundries, recreation and utility rooms.

You can sell Aeropel, too, for individual ventilation of many offices, reception, conference and rest rooms.

Check the price—it's right for competitive selling. *Compare the performance and appearance of Aeropel with any other fan.* You'll agree that you should sell this new home ventilator that is *designed and built* by American Blower.

Join the dealers who are finding Aeropel a profitable, fast-moving item. Take advantage of Aeropel advertising that is attracting more customers than ever before. Ask your jobber about Aeropel Home Ventilators—TODAY!

FREE Aeropel Booklets

A beautiful full-color booklet will make selling Aeropel still easier. Here are specifications, installation details, typical kitchen installations—full information—in convenient, attractive form for your customers.

AMERICAN BLOWER

Aeropel

HOME VENTILATOR

AMERICAN BLOWER CORPORATION, DETROIT 32, MICHIGAN

Division of American Radiator & Standard Sanitary corporation

Coordinating Outside Selling

GETTING UNDERWAY early on the competitive sales market ahead, the major appliance department at Famous-Barr Company, in St. Louis, has set up appliance salesmanagement systems which will involve directed outside selling and specialization by each department employee.

This leading St. Louis department store, which sold upwards of 3000 new refrigerators in 1942, is busily re-training former appliance men to "get them back into selling" and will likewise train ex-servicemen to fill in a twenty-man sales crew. The emphasis is on outside selling, which Al Francisco, buyer, believes is a "must" to obtain supremacy in the field once plenty of appliances are available.

Mr. Francisco, who has been a salesman and a personnel director before taking over Famous-Barr's huge appliance department in 1936, has carefully screened applicants for sales positions, and believes his will be one of the city's top sales organizations.

First point in the plan is appointing "specialists" in each division of the department. Thus there will be eight men who sell only ranges and refrigerators, eight men and women on washing machines, two in small appliances, and two more on package room coolers. "I don't believe in asking a specialty salesman to switch from one highly technical item to another," Mr. Francisco pointed out. "I believe that it takes a different type of person to sell a washing machine than required for a refrigerator."

Thus, each man will have a particular job to do. Mr. Francisco regards the refrigerator salesman as the "prima donna" of the appliance crew, with the most skillful selling job as his responsibility, and leaves the field free for that task only. Women, who understand home laundering much better, will make up the bulk of the washing machine staff, including automatic home laundry equipment.

A novel policy by which Mr. Francisco built up his staggering prewar sales volume is the fact that all salespeople except in small appliances are required to spend every other day on outside selling—thus giving them three floor days per week and three outside days. The staff is expected to build up leads during the floor days which are to be followed up the following day. Names and information on prospects are turned into the office, for making up a prospect report. The salesman then must try to close the sale during one of his three outside dates, after which the report is filed away, as sold or unsold.

Demonstration Basis

Instead of merely sending the outside staff out "prospecting" the entire outside job is set up on a "demonstration" basis. Under this plan, which guides all major appliance promotion in the Famous-Barr store, every salesman or saleswoman must make a demonstration in the home with every sale, whether the appliance was sold off the floor or outside. "It is a simple idea," Mr. Francisco said. "We merely wait a few days, until the customer is familiar with her appliance, and then make an appointment to demonsrtate it. The result of this are manifold—we hit the customer at the time when she is most enthusiastic over her new refrigerator, range or washing machine. During the demonstration, the customer will be glad to provide the names of potential buyers among her friends in the neighborhood, valuable leads which will form the salesman's work during the next few days. Some women invite several other housewives in for the demonstration. In all cases, spending an hour or so after the original sale was made is profitable—returning the largest number of prospects per call, and increasing goodwill between store and customer."

Demonstrations will be spaced out so that each man will have plenty of time to make his sales calls. Famous Barr salesmen in the past have been enthusiastic over the results, and are quite willing to put in this time. Although the local utility will furnish demonstrators when desired, Mr.

Keynote in Famous-Barr Company's policy with respect to appliance salesmen is that every salesman, except those in small appliances, will spend half of his time on the sales floor and half outside.

Frigidaire operates world's largest porcelain finishing plant for appliances!

FRIGIDAIRE was first to apply a porcelain finish successfully to household refrigerators, nearly a quarter-century ago. Since then, the finishing process and the porcelain itself have been steadily improved until the porcelain on Frigidaire appliances of today is world famous. Time, heat, water, paint, fire, scuffing—none of these will harm Frigidaire Lifetime Porcelain.

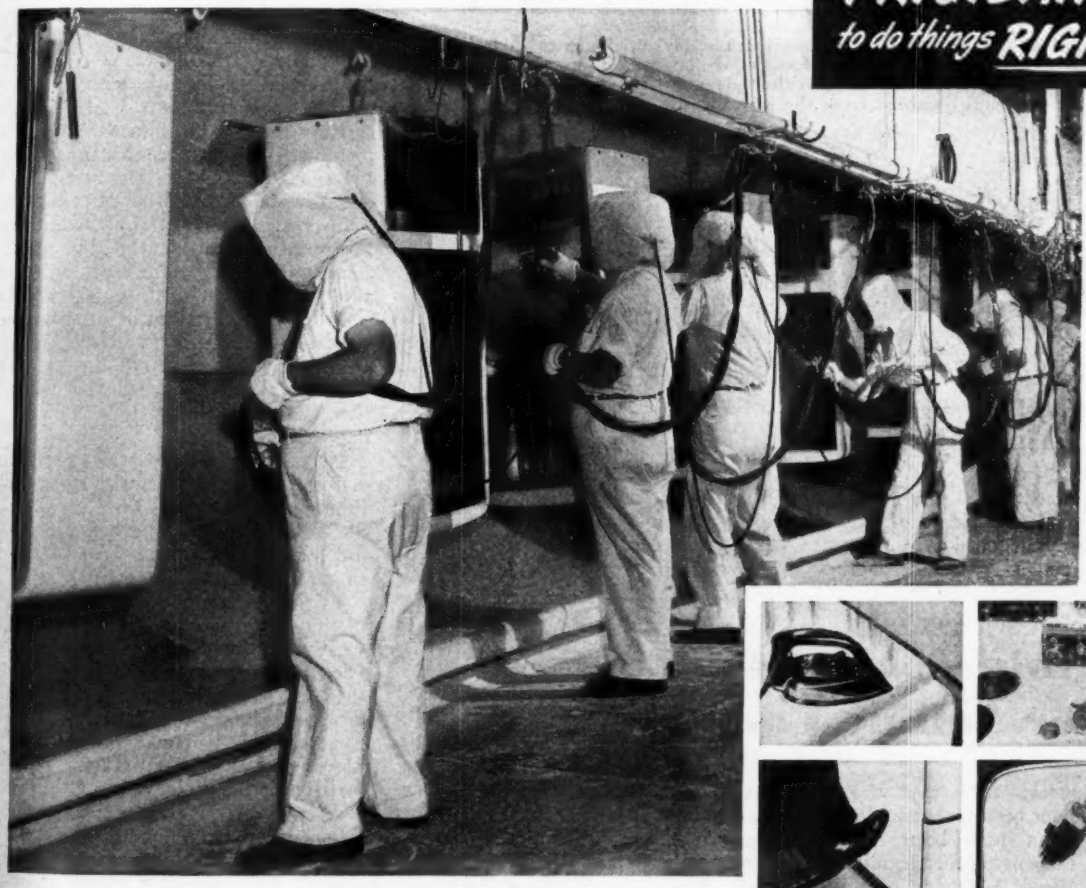
Yet Frigidaire Lifetime Porcelain, while being the finest obtainable, is not a high-premium product!

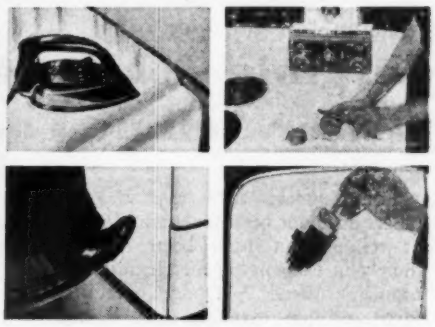
By modern methods of production; by continued improvement; by steady increases in economy of manufacture, Frigidaire has put this finest of all appliance finishes within reach of millions of home-owners. And Frigidaire has probably produced more porcelain-finished refrigerators than all other manufacturers combined!

This has meant added enjoyment and satisfaction to purchasers, a higher unit of sale and increased profits to Frigidaire dealers.

Here then — in this world's-largest porcelain-finishing plant — is another example of Frigidaire leadership. Another reason why the Frigidaire franchise is more eagerly sought and more jealously guarded than any other in the industry. Another proof that the Frigidaire dealer and his customers can—

Depend on FRIGIDAIRE to do things RIGHT!





Proof of the enduring finish of Frigidaire Lifetime Porcelain is shown in actual tests with excessive heat, lemon juice, scuffing, and paint. Years of experience have proved how well Frigidaire Lifetime Porcelain stands up under such treatment.

You're twice as sure with two great names

FRIGIDAIRE

made only by GENERAL MOTORS

The policy of having salesmen spend every other day on the sales floor is expected to eliminate entirely the necessity of having salesmen do any "prospecting" or "cold canvassing." On their days outside, they will follow up on the leads obtained from the previous day on the floor.

Francisco believes in using only his own salesforce.

"We want to establish a personal relationship with our customers and keep it up," he indicated. "We never relax this theory. After the demonstration, with the customer's name recorded permanently, we will make a minimum of two callbacks, by telephone or in person, during the following year. This again provides prospect leads, and keeps the customer thinking of us."

With upwards of 20 men available, the store can make plenty of outside calls. Mr. Francisco does not expect to go into cold-canvassing or doorbell ringing for at least five years.

Famous Barr salesman receive the same commission on sales made inside the store or out—since Mr. Francisco merely makes a point of telling them that floor leads sold outside are the most profitable field for each individual. Everything is being done to establish a crew of well-paid, contented salesmen who will not drift elsewhere after a few months. "Alternate floor days, outside demonstrations to get prospects when selling becomes more competitive, and specialized assignments to individual appliances will pay the greatest returns per man," he summed up.

Virginia Jobber Conducts Better Selling Campaign

FOR SEVERAL years appliance retailers have not been practicing the art of selling, but have been engaged merely in exchanging merchandise for money. Alfred P. Dodge, vice-president and sales manager of A. R. Tiller, Inc., distributors of electrical appliances is driving that idea home in a campaign to improve present-day methods of selling. "Better Selling Crusade" is what he calls it.

He recently made such a hit with a talk and demonstration which he gave before the Electrical Radio and Refrigerator Club of Richmond that he was elected director of sales training for the club. Practically the entire membership of the club, together with many dealers from Southside Virginia, attended the meeting. He insists in his talks that if those charged with the responsibility of sales management begin now to innoculate everyone with the importance of improving their selling, then the statement, "Give us the merchandise and we'll show you how to sell it," will be no idle boast.

The Electrical League of Norfolk and the Peninsula Appliance Dealers Club of Newport News also had him present the "Better Selling Crusade" to their organizations. Both these groups have endorsed the program as he has the Richmond Club, and all three have pledged themselves to cooperate with Mr. Dodge in putting it over.

Here are the main points which he stresses: 1. Selling offers the greatest opportunity today. 2. Selling is serious business but to management only. Selling has taken a four-year vacation. 4. Selling has not been sold to those selling. 5. Selling is fun if you do it right.

Three things in particular are important, he says, to promote better selling: 1. Courtesy. 2. Sincerity. 3. Knowledge.

Mr. Dodge is receiving many inquiries as to details of his program, not only locally, but from points around Virginia and other parts of the country. In addition, he is giving his time in making talks with accompanying demonstrations. At Miller & Rhoads and Thalhimer's, he has presented his program, appearing five times at each store. He first presented it at Miller & Rhoads to members of the sales staff of the home furnishings department. The last presentation was before executives of the firm.

In his demonstration he uses sound movies, slide movies, and reflectors. In his appearance before the executives of Miller & Rhoads he made use of General Motors' film "I Wonder."

He has also presented his program at several other department stores in Richmond, including The Kaufman Store and Baldwin's, and before directors of the Richmond Retail Merchants Association.

In the opinion of Mr. Dodge there never was a time when a whole society depended upon the forces of salesmanship as it does today, rather than statesmanship alone. "If we sell what we can produce," he says, "we will prosper, thereby curbing unemployment and reducing taxes. There is only one way to accomplish this task, and that is by improving our salesmanship as individuals, as sales forces and as whole industries. We should start immediately and reconvert our sales thinking from the laxness of the past few years to the positive, aggressive and creative selling so necessary to move the mountain of goods and services soon becoming available."

He carries around with him in his pocket a $5 bill ready to spend it,

(*Continued on page 72*)

Pardon the eavesdropping—

but did we hear MITCHELL mentioned?

HARRY: So you're getting rid of your old lighting, Tom. What kind of fluorescent are you going to install?

TOM: What kind? Why—I don't know—they're all pretty much alike, I suppose. What do you think about it, Harry?

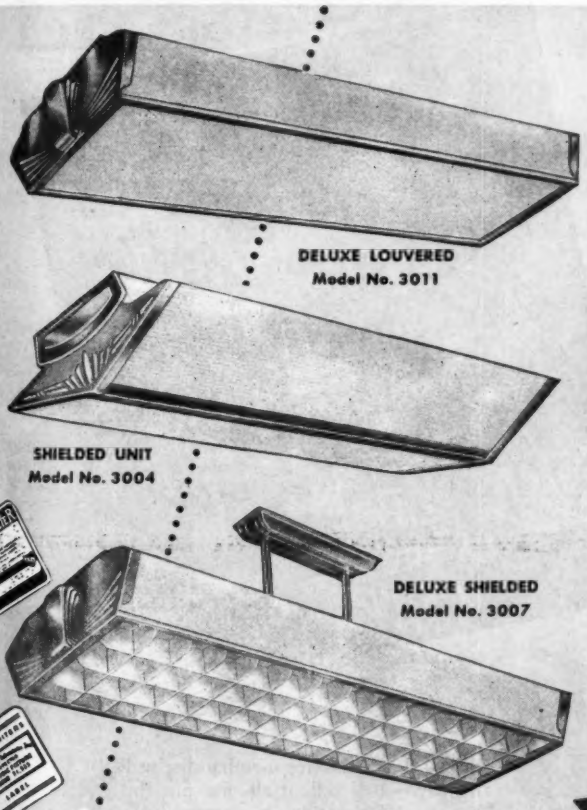
HARRY: Well, they're really not all alike. My contractor recommended MITCHELL fixtures for my place, and he really turned out a swell job. Plenty of light all over—and the fixtures went up fast, too. He claimed MITCHELL lights are "top"—and he was right.

TOM: Sounds like a good lighting tip.

HARRY: And that isn't all. The utilities man who calls on me was plenty impressed with the job—said I had as good a lighting installation as could be bought at any price.

HARRY: If I were you, Tom, I'd get the straight dope on what you need from a MITCHELL distributor.

TOM: Sounds O. K.—a recommendation like that is good enough for me. I'll look into it today. Thanks for the help.



There are thousands of prospects everywhere, ready for new lighting installations—and a big factor in sales is the word-of-mouth MITCHELL-boosting that has helped make MITCHELL the most popular fluorescent lighting line in the country. Everyone—*users, distributors, contractors, utility men*—knows and appreciates the efficiency and eye-appeal of MITCHELL Commercial Fluorescent Lighting—all are unanimous in their favorable opinion of this business-building, user-accepted line. Take a tip—MITCHELL is *your* best bet, too.

Mitchell Manufacturing Company
2525 CLYBOURN AVENUE, CHICAGO 14, ILLINOIS
Far West: *Complete Modern Plant and Sales Office at Los Angeles Serves the Entire Pacific Coast Area*
1019 NORTH MADISON AVENUE, LOS ANGELES 27, CALIFORNIA

the preferred COMMERCIAL LUMINAIRES

MITCHELL

Makers of Commercial and Industrial Fluorescent Lighting Equipment Store Window Lighting • Spotlights and Floodlights • Desk Lamps • Portable Floor and Table Lamps • Bed Lamps • Ultraviolet and Infrared Health Lamps • Residential Lighting Specialties . . . Rad-i-Air Germicidal Units (made by Tru-Air Ultraviolet Products Co., Los Angeles.)

Lack of conventional building materials did not prevent two enterprising young Texas business men from opening their combination appliance and furniture business in Corpus Christi, Texas. Shown here are views of their building which utilized quonset huts and considerable glass. Merchandise now includes a variety of lamps, but full line of appliances will be offered when available.

Unique Building for Appliance Retailer

SAVE MASTERS, 206 South Water Street, Corpus Christi, Texas, a new design and a new type of furniture store for the Southwest, has, by skillful display of its floor and table lamps built up an enviable volume in the few short months the store has been open.

Owned and operated by two partners — J. A. Kush, an ex-Navy pilot from Bethlehem, Pa., and Joe K. Trauerman, Jr., who comes from an old "furniture family" in the Fort Dodge, Iowa — the furniture-plus store is constructed of three 40x100 quonset huts connected by a 20x100 showroom facing on the muchly-traveled Water Street. Light green concrete bricks and red cement floors contribute greatly to the appearance of the plant, which was designed by Architect Richard Colley.

Mr. Trauerman, who works on the theory that attractive merchandise well displayed half sells itself, has put this theory into action as regards the lamps carried by Save Masters. "Show 'em and sell 'em," he adds with a grin. And a stroll through the showroom of the store reveals that he practices what he preaches.

Portrait of a MAINTENANCE MAN

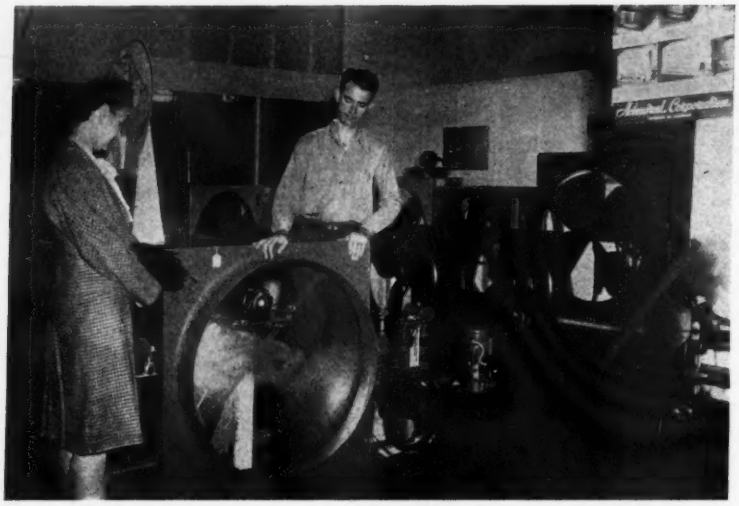
A little exaggerated, perhaps . . . but what we're trying to say is simply this: FEDERAL NOARK Products are built to provide dependable performance wherever they're installed. Their many exclusive features of design and construction mean a minimum of supervision . . . and a real saving in maintenance costs. It's good sense—and good business to specify FEDERAL NOARK Electric Products! . . . Federal Electric Products Company, Executive Offices: 50 Paris Street, Newark 5, N. J. Plants: Hartford, Conn., Newark, N. J., St. Louis, Mo., L. I. City, N. Y.

Portrait of FEDERAL NOARK Magnetic Starter, Bulletin 404 in action

Federal NOARK

INDUSTRIAL CONTROLS

Federal Electric Products Company, manufacturers of a complete line of electrical products including: Motor Controls, Safety Switches, Circuit Breakers, Service Equipment, Panelboards and Switchboards



Leo Quakenbush, owner of the Miami Appliance Company, Miami, Okla., is a firm believer in promoting appliance sales by displays that can be operated. He has followed this policy precisely in his own store with encouraging results. Even his attic fans and large exhaust fans are arranged so that the customer can actually see them in operation.

Displays that Really Operate Promote Appliance Sales

IN THE FAR EAST it is said that selling is an endurance contest between buyer and seller in which both parties shout and wave their arms for hours before common ground has been reached.

Here, where buyers and sellers have reached a high state of perfection, and time costs have reached high levels, speed in selling is essential to profit.

When a $100-a-week floor salesman takes thirty minutes to sell Mrs. Smith a $6.95 electric percolator, the cost of the sale is more than the profit.

Consequently anything that helps a customer speed his selection is a valuable bit of store business.

Leo Quakenbush, owner of the Miami Appliance Company, 201 S. Main Street, Miami, Oklahoma, does it with motion.

All merchandise that moves, turns, or splashes, is displayed on the sales floor, connected to the electric circuit, so that it can be operated.

Attic fans are big sellers in this store and few would have thought that attic fans could be better sold by operating them on the floor.

The stock consists of several different brands, a dozen sizes, shapes, and capacities, and all of them are set up on the floor near a receptacle where they can be plugged in.

"Customers like to feel the breeze that each fan makes," Mr. Quakenbush said. "They like to compare one fan with another. I have them operate several before they decide. They compare the noise that each makes, stand in front of it to better feel the force of the blast. We have cut the time down at least one half against what it used to take to sell a fan."

Mr. Quakenbush has also found that after the customer has made his own selection of an attic fan, heard it run, and felt its breeze, they are far better satisfied when it is installed. This system of selling also helps to sell the installation job.

Fans are sold from the floor. The customer can install it or he can get the store to install it. Installation costs vary according to the work required when a customer has bought the fan of his own selection, he is much easier sold and satisfied on the installation job.

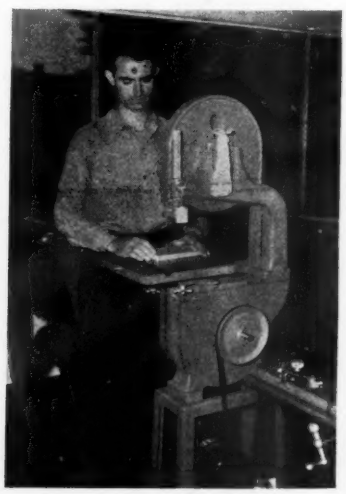
Miami Appliance Company sells a line of power tools such as saws, bandsaws, lathes, sanders, jointers. Many of these are bought by men in the trades and many are bought by the home craftsman.

When power tools are demonstrated under actual operating conditions, Mr. Quakenbush said that selling time was reduced and more sales were promoted.

Men like to try out a power tool no matter how familiar they may be with its operation. Mr. Quakenbush keeps a few blocks of wood for trying out the saws and customers like nothing better than to turn on the power and take a few cuts.

All merchandisers of power tools are familiar with the practice of locking lathes, grinders, and other tools so that they cannot be turned. This has been a trade practice because

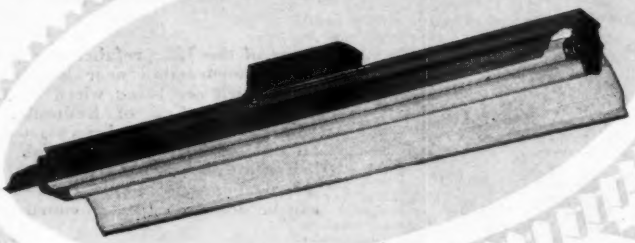
(*Continued on page 71*)



Other examples of floor displays that really work. At left, a washing machine connected for demonstration with an actual load of clothes, and above, a bandsaw for the hobbyist, connected for actual demonstration.

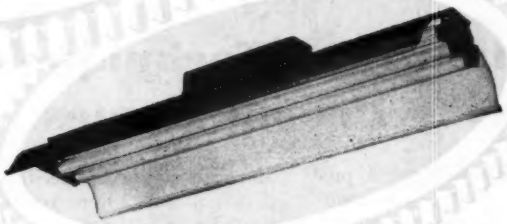
AUTUMN WEDDING—PROFIT HONEYMOON—WITH

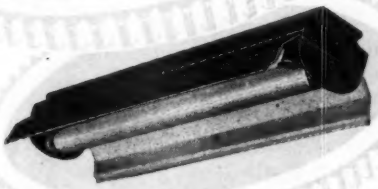
HOLDENLINE CHAN'L-RUN



There's a new bond between electrical men and HOLDENline CHAN'L-RUN, a lasting honeymoon blessed with sweet profits. This Fall, smart wholesalers and contractors are choosing the Holdenline family of fixtures—a family related by the famous rigid steel channel that gives CHAN'L-RUN its name.

Inherent in both the long-established industrial line—and in all the dramatic new family of fixtures still to come—is the strength, durability and flexibility that assures ease of installation and maintenance, economy of operation and customer satisfaction, fixtures that sell easily and stay sold.





No union between electrical men and HOLDENline would be complete without a promise for the future. Soon—the new HOLDENline commercial (LC) series will join this famous industrial family. Then—HOLDENline CHAN'L-RUN will help you meet *every* lighting problem, offer you the right fixture with the right lighting intensity to do a completely related lighting job.

If you haven't seen the Holdenline Chan'l-run bulletins, ask your wholesaler or write to

HOLDENLINE COMPANY

Pioneers in Fluorescent

2301 SCRANTON ROAD • CLEVELAND 13, OHIO

Some of the 122 prefabricated houses under construction near Kensington, Md., which are being wired by Johnson Electric Co., of Bethesda, Md. Some 67 houses have been started and all the sites have been cleared. This is a pilot job to show contractors, lumber dealers, and home owners what can be done with prefab construction.

Production Line Technique For Wiring Prefab Homes

PRODUCTION-LINE building of prefabricated houses calls for prefabricated wiring methods. The electrical contractor needs to figure short-cuts and mass production of the component parts of the wiring job.

Timing of the job and coordination with the contractor of construction and the other crafts is essential to profits and becomes even more important than in conventional jobs.

Operations and materials must be divided into like divisions. Where an electrician would ordinarily cut a two-foot length of No. 14 wire and wire it in—he now cuts one hundred pieces —all at the same time if he can devise a way.

All of these things figure directly in the profits and are some of the things learned by the Johnson Electric Company, 7721 Old Georgetown Road, Bethesda, Md. Prefabricated house wiring is a nice business but its in a world of its own—a changing world and a fast one.

This company has wired 28 prefab houses and the experience on these will make it possible for two men to wire a four-room prefab in fourteen hours.

The experience they have had should prove valuable to other contractors who have opportunities to bid on prefabricated housing projects. Since the following specifications and details all refer to one type of pre-fabricated house, the wiring will need to be worked out in a similar manner for any other type of pre-fabricated dwelling.

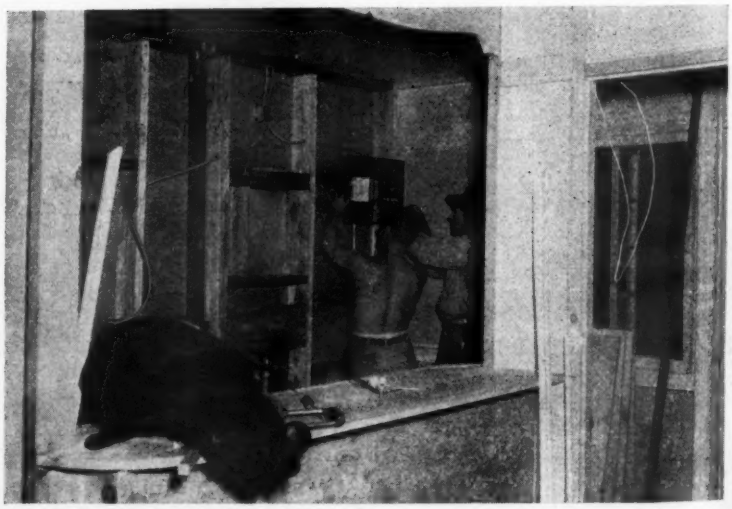
They are now wiring a project which will consist of 122 houses which is located near Kensington, Maryland, only a short distance from Washington, D. C.

These houses are of the horizontal rail type using but one thickness of material for wall. These one-piece walls are attached to a skeleton frame and there is no space between outside wall and plaster for concealed wiring.

Consequently the wiring has to be of such a type as can be mingled with the structural members of the inside wall to prevent it being too conspicuous.

In the first houses they wired, they tried bringing the service in from underneath and bringing the circuits up from under the floor. This was much too expensive. It consumed too much time.

The system now in use and which will make it possible for two men to wire a two-bedroom house in fourteen hours, is by using a molding type conduit (Wiremold) which goes around each room at wainscot height



Circuit breaker and panel is mounted in the kitchen. All of the houses are wired with three-wire service regardless of kitchen equipment.

Explosion-Proof CONDULETS

The illustrations show a representative selection from the thousands of types and sizes of Explosion Proof Condulets, especially designed for use in electrical installations in locations that are hazardous because flammable atmospheres are present or likely to be present.

(CONDULETS are made only by CROUSE-HINDS)

No. 12
of a series of advertisements which demonstrate that CROUSE HINDS "complete line" means much more than just a range of sizes — there is a wide variety of highly specialized types in each classification.

Type GUB Explosion-Proof Instrument Condulet

Type HRC Explosion-Proof Mercury Switch Thermostat Condulet

Type GUP Explosion-Proof Condulet

Type EFS Explosion-Proof Switch Condulet

Type GUAP Explosion-Proof Condulet

Type EFSC Two-Gang Explosion-Proof Push Button Switch Condulet

Type CPS "T" Explosion-Proof Condulet

Adjustable Type EHS Explosion-Proof Delayed Action Receptacle Condulet with Chromium Face Plate for hospital operating rooms and similar hazardous locations

Type FSQ Explosion-Proof Interlocking Receptacle and Switch Condulet with Plug

Type EVH Explosion-Proof Hand Lamp

Type RCDE-8 Explosion-Proof Floodlight 200 Watt

Type GUJL Explosion-Proof Condulet

Type OFC Explosion-Proof Push Button Station Condulet

Type EHS Explosion-Proof Triple Switch Condulet

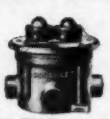
Type CES Explosion-Proof Delayed Action Arktite Plug Receptacle Condulet

Type EVA Explosion-Proof Lighting Fixture 150 Watt

Type ELG Explosion-Proof Gauge Lighting Condulet Fluorescent

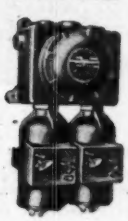
Type GUEL Explosion-Proof Condulet

Type EGP Explosion-Proof Push Button Station and Pilot Light Condulet for panel mounting


Type EHS Explosion-Proof Signal Light Condulet

Type CPS Explosion-Proof Delayed Action Arktite Receptacle with Plug

Type EVA Explosion-Proof Sign Light Condulet

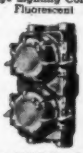

Type ESP Explosion-Proof Panelboard

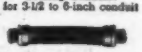
Type EZS Explosion-Proof Sealing Condulet for 3-1/2 to 6-inch conduit

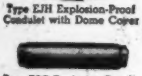
Type EJH Explosion-Proof Condulet with Dome Cover

Type FLB Explosion-Proof Circuit Breaker Condulet

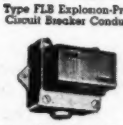
Type EHS Explosion-Proof Thermostat Condulet


Type GUSC Two-Gang Explosion-Proof Circuit Breaker Condulet


Type ECJ Explosion-Proof Flexible Coupling


Type ESC Explosion-Proof Condulet

Type LBH Explosion-Proof Condulet


Type HR Explosion-Proof Thermostat Condulet

Type FSQC Explosion-Proof Interlocking Receptacle and Switch Condulet

Type CPS Two-Gang Explosion-Proof Delayed Action Arktite Receptacle

Type ELG Explosion-Proof Gauge Lighting Condulet

Type UNA Explosion-Proof Connector with Angular Adjustment

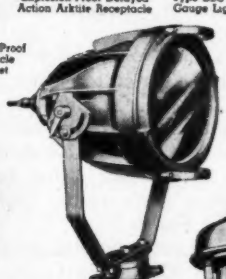
Type ETR Explosion-Proof Bell Signal

Type ECD Breather Valve

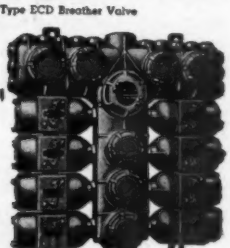
Type ECD Drain Valve

Type EPH Pothead Explosion-Proof Condulet

EPC Series Explosion-Proof Condulets Motor Starters, Circuit Breakers and Combinations

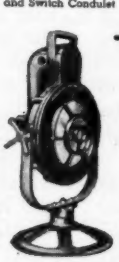

Type RLEE-14 Explosion-Proof Floodlight 500-Watt

Type EMS Explosion-Proof Mercury Limit Switch Condulet

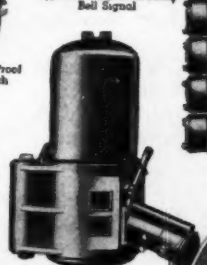

Type EDP Explosion-Proof Panelboard

Type EJB Explosion-Proof Condulet

Type EVG Explosion-Proof Lighting Condulet for gasoline pumps


Type BCDE-8 Explosion-Proof Portable Floodlight 200-Watt

Type EVA Explosion-Proof Lighting Fixture 500-Watt


Type EPC Explosion-Proof Interlocking Plug Receptacle and Circuit Breaker Condulet

A Nationwide Distribution Through Electrical Wholesalers

Complete listings of each type are in Condulet Catalog 2500.

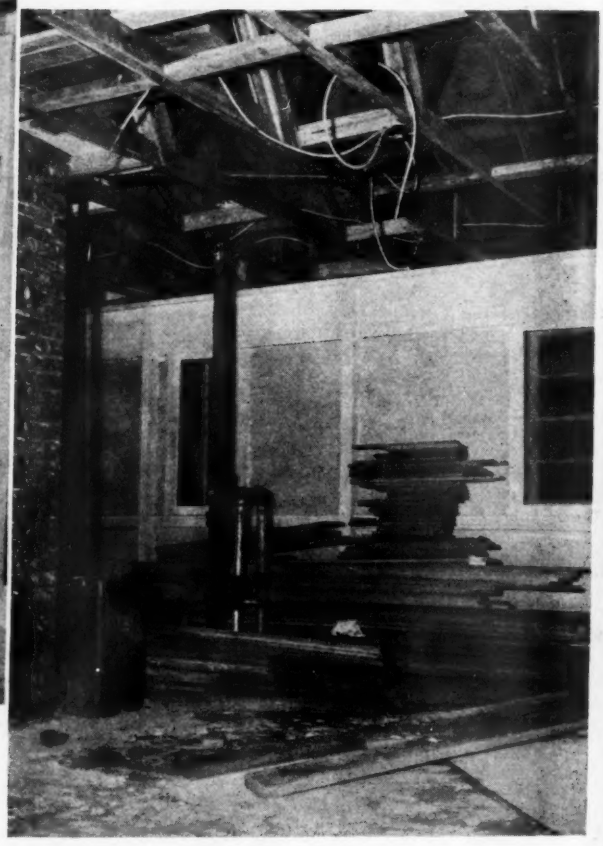
CROUSE-HINDS COMPANY
Syracuse 1, N. Y., U.S.A.

Offices: Birmingham — Boston — Buffalo — Chicago — Cincinnati — Cleveland — Dallas — Denver — Detroit — Houston — Kansas City — Los Angeles — Milwaukee — Minneapolis — New York — Philadelphia — Pittsburgh — Portland, Ore. — San Francisco — Seattle — St. Louis — Washington. *Resident Sales Engineers:* Albany — Atlanta — Charlotte — Indianapolis — New Orleans
CROUSE-HINDS COMPANY OF CANADA, LTD., *Main Office and Plant:* TORONTO, ONT.

CONDULETS · TRAFFIC SIGNALS · AIRPORT LIGHTING · FLOODLIGHTS

H. B. Johnson, Jr., of the Johnson Electric Company, wires in a vertical conduit standard of the molding type. There is no space for concealed wiring in this type of residence. Experience indicates that much of the wiring must be prefabricated for efficient installation.

To facilitate installation of wiring in the limited time generally available in each unit, the ceiling outlet boxes were mounted on short sections of 2x4 and all armored cable was cut to proper lengths and connected to the box in advance. Here it is being installed.



just below the structural rail of the building. A similar type of molding conduit is mounted vertically at the front and rear entrances. It contains switch for porch light and a switch that controls a receptacle plug at the bottom. This will permit floor lights to be switched on and off from the wall when entering.

Service is brought into the house at the eaves and goes directly to a circuit breaker box which is concealed inside one of the kitchen cabinets.

While gas stoves are being installed in all the houses in this project, three-wire service is being brought to the circuit breaker panel box in every house. From this panel three circuits are taken off. No. 14 Type T wire is being used in the molding conduit.

Overhead wiring which is of the conventional concealed type and installed above the ceiling consists of conventional No. 14 BX cable and regular outlet boxes. Each room will have a ceiling fixture.

Alfred Johnson and H. B. Johnson, Jr., two brothers recently returned from the Navy, who own the Johnson Electric Company, worked out the details of the overhead wiring in this way. Each length of BX cable was figured out and they used one empty building for a shop where they prefabricated all the overhead wiring. They cut ten houses at a time. The BX was installed in the outlet boxes and the outlet boxes nailed to a short piece of two-by-four that fitted between the ceiling joists, before being installed in the ceiling.

Each of these prefabricated assemblies looked like a giant spider with four legs. They had to get these in before the general contractor started ceiling. They discovered that it was next to impossible to get the wiring in without a lot of trouble unless they got to the building at the right time. Incidentally the timing and cooperation with other crafts needs to be nearly perfect in these pre-fab jobs.

These prefabricated ceiling assemblies were nailed in place in each room and the BX from the box run to proper outlets such as the vertical moldings near the doors. After that short job the contractor could put his ceiling crew to work.

Each house will have a floor furnace and a separate circuit runs under the floor to the furnace for those who expect to operate an oil burner or a fan to circulate the air on gas-fired furnaces. All furnace circuits run direct from the panel box and are not tapped for any other use consequently when the floor circuit trips the circuit breaker it indicates trouble in the furnace motor.

If owners decide that they want electric stoves later the 220-volt circuit will be in the box. In order to wire a stove all that will be necessary is to run a three-wire circuit out of the bottom of the box back of the kitchen cabinet, mounting a three-way stove plug near the floor. Electric water heater installation will also be an easy matter and only a short

No electrical equipment can be any better than its insulation

Because of its excellent weather resistance, this insulating varnish was used for all kinds of war communications equipment . . .

G-E INSULATING VARNISH 9564

A clear synthetic resin varnish . . . may be air-dried or quick-baked . . . for heavy-duty communications equipment

. . . and the same varnish is now being used for protection in peacetime communications systems far and wide.

GENERAL ELECTRIC'S unrivaled facilities for synthetic resin insulating varnish research, development and manufacture are now available to all who make or repair electrical equipment. Be sure of product uniformity, by virtue of G-E Quality Control—specify G-E Insulating Varnishes. For full details consult your local General Electric Merchandise Distributor. Or write direct to Section RIMA-1064, Resin and Insulation Materials Division, Chemical Department, General Electric Company, Schenectady 5, N. Y.

GENERAL ELECTRIC

CD46-16

G. E. OFFERS A COMPLETE LINE OF INSULATING MATERIALS

distance will need to be wired.

In reality this pre-fabricated home project is a pilot plan where thousands of details are being worked out by actually building, selling, and using the units.

Already the hand-writing on the wall as far as house wiring is concerned shows that in the future there will be a pre-cut package of electric wire, molding, and fixtures with each prefabricated house. The electrical contractor will open up each box and it will contain a blueprint and every wire cut to exact size.

The wiring details in these houses that are now under construction will stand inspection anywhere, Mr. Johnson said. They comply with the Maryland code, the Underwriters code and have been approved by the FHA, the OPA, and the Veterans Administration.

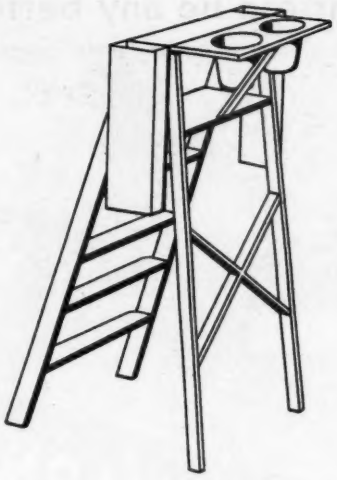
The pre-fabricated house is 28 by 24 feet, contains two bedrooms, bathroom, kitchen, dinette, storage room and two porches. The house itself sells knocked down for $3250.00 and complete with site, oak floors, furnace, is listed to sell for an average of $8200.

All-Purpose Ladder Aids Lighting Maintenance

To MAINTAIN the high lighting levels of small fluorescent installations in stores, offices and institutions, engineers of Sylvania Electric Products Inc. have developed this "all-purpose" maintenance ladder, which is easy and inexpensive to build. By the addition of sheet metal or wood racks to any ladder, spaces are provided for burned-out lamps, new lamps, starters, cleaning cloths and two buckets, one for the cleaning solution and the other for rinse water.

A systematic plan of fluorescent maintenance insures continuous peak performance of fluorescent lamps and fixtures with minimum dimunition of light output. In one installation studied, accumulated dirt and dust on lamps and reflectors caused a 27% light loss. The frequency of cleaning, of course, is dependent on locality and dirt in the atmosphere, but a rule of thumb says that when fixtures are providing one quarter to one third less light than the designed output, it is time for a soap and water application.

The cleaning agent to be used depends on the type of reflecting surface. Reflectors which are only slightly dirty can be rubbed with a damp cloth, but to remove hardened dirt on a porcelain enamel surface, an efficient and concentrated "soapless" soap will do a thorough job with a minimum amount of effort and leave the surface clean and sparkling. Synthetic enamel surfaces, however, require a green soap solution briskly applied.



On an aluminum reflector, the solution must be as neutral as possible, since even mild alkalinity or acidity will destroy the reflectivity of the metal finish. A green soap solution or one of the special wax or wax emulsion cleaners which have been specifically developed for cleaning aluminum are recommended. Glass surfaces of lamps and diffusers are best cleaned with trisodium phosphate, and no rinsing is necessary.

Nashville Trial of Electrical Heating

INABILITY to get equipment and materials for electric home heating may have been a help instead of a hindrance think some dealers in Nashville, Tenn., where at least 100 houses will be heated in this manner this coming winter as compared to none last winter.

"Scarcity of units (individual room units) has made us careful of the homes that we contract to put them in," declared Mrs. J. L. Shannon, of Shannon Electric and Heating Co., 113 Ninth Avenue, North, Nashville, giving as her reason: "We have received enough units for about 60 houses and have contracted to install all of them without one line of advertising or the least effort at selling. If these 60 installations all give satisfaction this winter, it will be just as easy to contract for 600 installations for the next winter, but we must make this 60 good!"

Other Nashville dealers are pursuing the same policy. If the owners who are having their homes wired for heating now are completely satisfied, they can expect the "multiplication" of sales predicted by Mrs. Shannon. If there are any number of dissatisfied owners, the opposite effect may be experienced. Here are some of the precautions being taken in selecting homes to be wired:

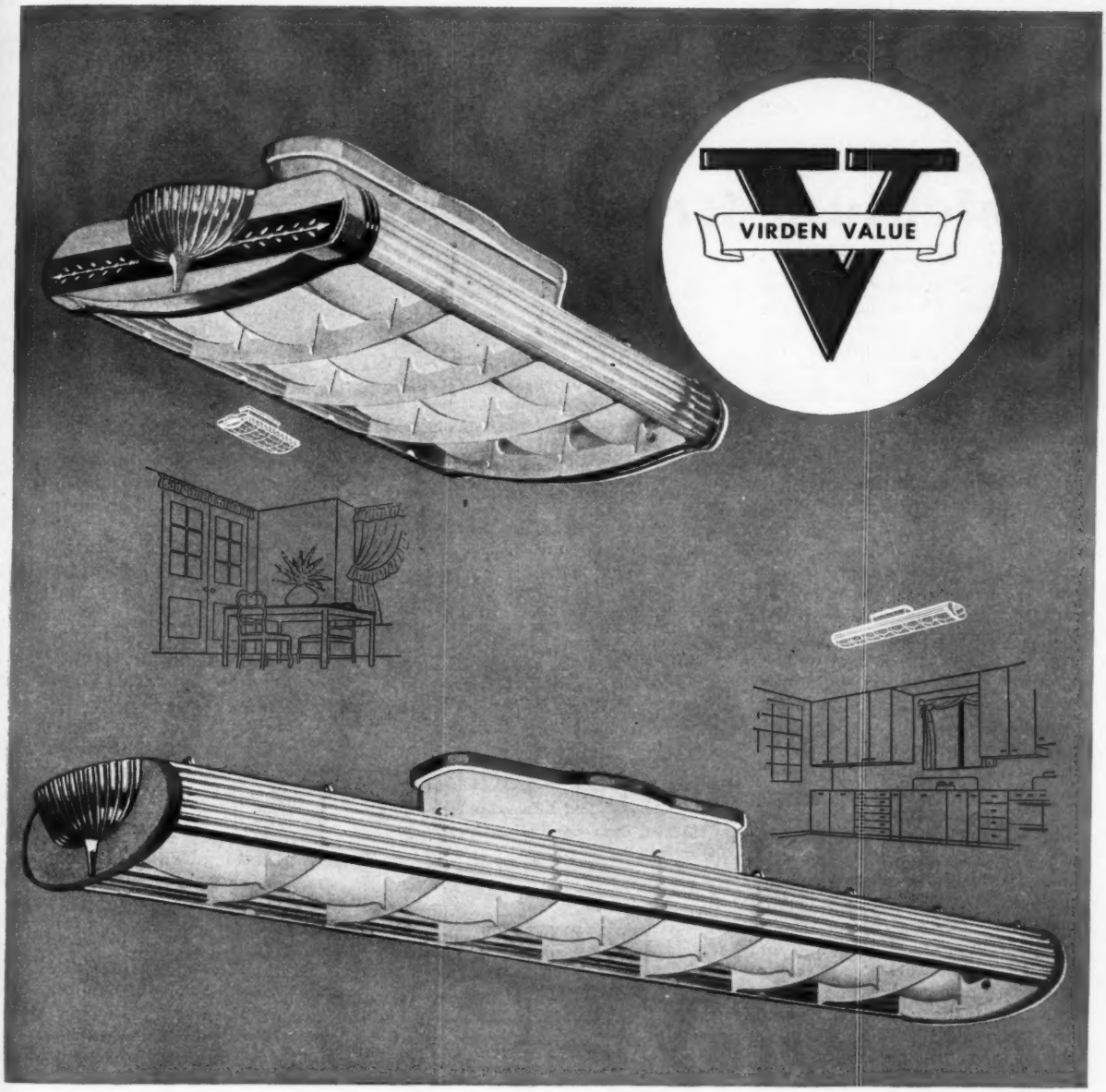
The home must be built for heating of this type. It must be insulated and weatherstripped to reduce heat losses to a minimum. Few old houses meet the requirements so at least 95 per cent are new homes built to meet modern heating specifications.

Each dealer is working closely with Nashville Electric Service, which itself is not offering anything for sale—appliances or heating—in competion with private dealers. When a request is received for an estimate on an installation, a check is made with the power company to make sure the home can be reached with the necessary voltage. These checks have already saved embarrassment to dealers who found out that certain prospects live in an area where enough current is not available. An OK from the power company clears everything up. This co-operation with the power company results in prompt power cut-ins when ready for them.

A case in point is that of the writer of this article, who requested Shannon Electric and Heating Company early in June for an estimate on the cost of electric heating. This request was the result of reading newspaper stories about the success of this type of heating in Knoxville and Chattanooga, including the estimate of the cost of electricity given out by Tennessee Valley Authority, at Knoxville.

TVA's estimate of electricity costs ranged from $48.50 annually for a four-room house to $98.50 for an eight-room house. According to this the heating of the writer's six-room house would come to about $75 a year. A check with the heating expert for Nashville Electric Service brought a figure of $65 annually, which was the figure first quoted by Shannon Electric Co. Compared to the prospect of paying for 11 or 12 tons of stoker coal at $9.71 or higher, these figures appeared mighty good. Now the installation is in and we shall see what we shall see about the cost. The total cost of the installation itself including additional wiring was $644.93.

ELECTRIC hedge trimmers, designed for operation with d.c. or a.c., are on the market.



New RESIDENTIAL Fluorescents...ready soon

• At the top a new 4, 20-watt lamp fixture that will be widely used in residential lighting for both kitchen and dining room lighting. A ceiling fixture of the first rank. Utilizes plastics for both decorative and lighting effect. No need to tell you it's rich in beauty and will go over big. It's right in price, performance and personality. • Below is our 2, 40-watt lamp unit for the kitchen. Your customers will like it.

Virden jobbers are always glad to co-operate.

John C. Virden Company • Cleveland, Ohio

Member American Home Lighting Institute

Selenium Rectifier Applications

By Julian Loebenstein*

UNDER WAR stimulus many improvements have been made in the selenium rectifier and its range of application has been widened. For many years its long life and dependability have been known and these characteristics have been further proved by additional experience.

Whereas a few years ago the dimension of the selenium plates was limited to relatively small sizes, with a correspondingly large bulk for high current capacities the plate sizes now have been increased to approximately thirty square inches. Also, in past years, the maximum voltage applicable to individual plates was 18 volts a-c. Now plates capable of sustaining much higher voltage have been developed, making it unique among dry plate rectifiers.

This means that for a given applied alternating current voltage fewer plates need be used than was formerly the case, making it both convenient and economical to handle applications such as textile machines, coin machines, candy-making machines, counting machines, counting and grading equipment, electro-cleaning, theatre arc projection, electric-plating and other electro-chemical uses as well as battery charging, welding business machines, cathodic protection, motor speed control, the replacement of vacuum tubes in home radio sets, elevator control magnets for chucks, relays, brakes, clutches and controls of all kinds as well as separators and valves.

The above list is brief and just touches a few of the many applications. Previously, in many of these uses, rectification was limited to other methods. However, the experience of many manufacturers who have used selenium rectifiers has made them turn to them more and more as these improvements have developed new fields of application. Even the general consuming public has become aware of the advantages of this type of rectifier and is requesting battery chargers incorporating selenium stacks.

Although the rectifier plate as an end product incorporated in a rectifier stack seems like the simplest possible device, its manufacture involves a number of stages, all of which require the greatest skill and careful chemical control. A rectifier base plate is prepared so that a layer of selenium and a counter-electrode layer of alloy may be placed over the selenium. The base plate serves as one electrode and the metal alloy as the other. In addition, the plate is treated in such a manner that it presents a high resistance to the flow of current from its alloy front electrode to the aluminum back electrode and a low resistance to the current flow from the aluminum to the alloy electrode.

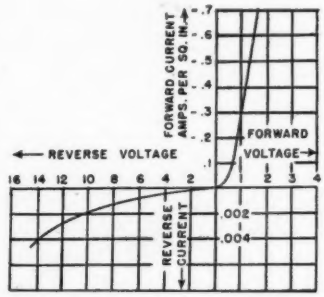


FIG. 1 D.C. Forward and Reverse Characteristics.

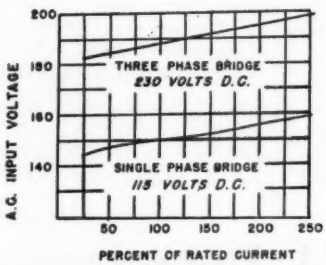


FIG. 2 A.C. Input Voltage for Typical Rectifiers.

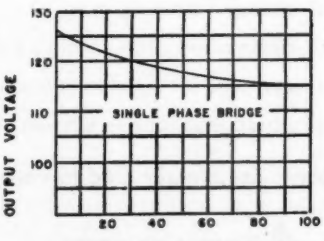


FIG. 3 Output Voltage Variation with load - Typical Rectifier.

The high resistance from front to back electrode is called the reverse resistance (or leakage), while the low resistance from the back to front electrode is known as the forward resistance. Theoretically, the greatest degree of rectification would be obtained if the rectifier had an infinite reverse resistance and zero forward resistance. Naturally, this condition is impossible to achieve in production, but the more nearly it can be approached, the more efficient the rectifier. These characteristics are shown in Fig. 1 in connection with which it should be noted that the reverse current and voltage are plotted to a different scale from the forward resistance.

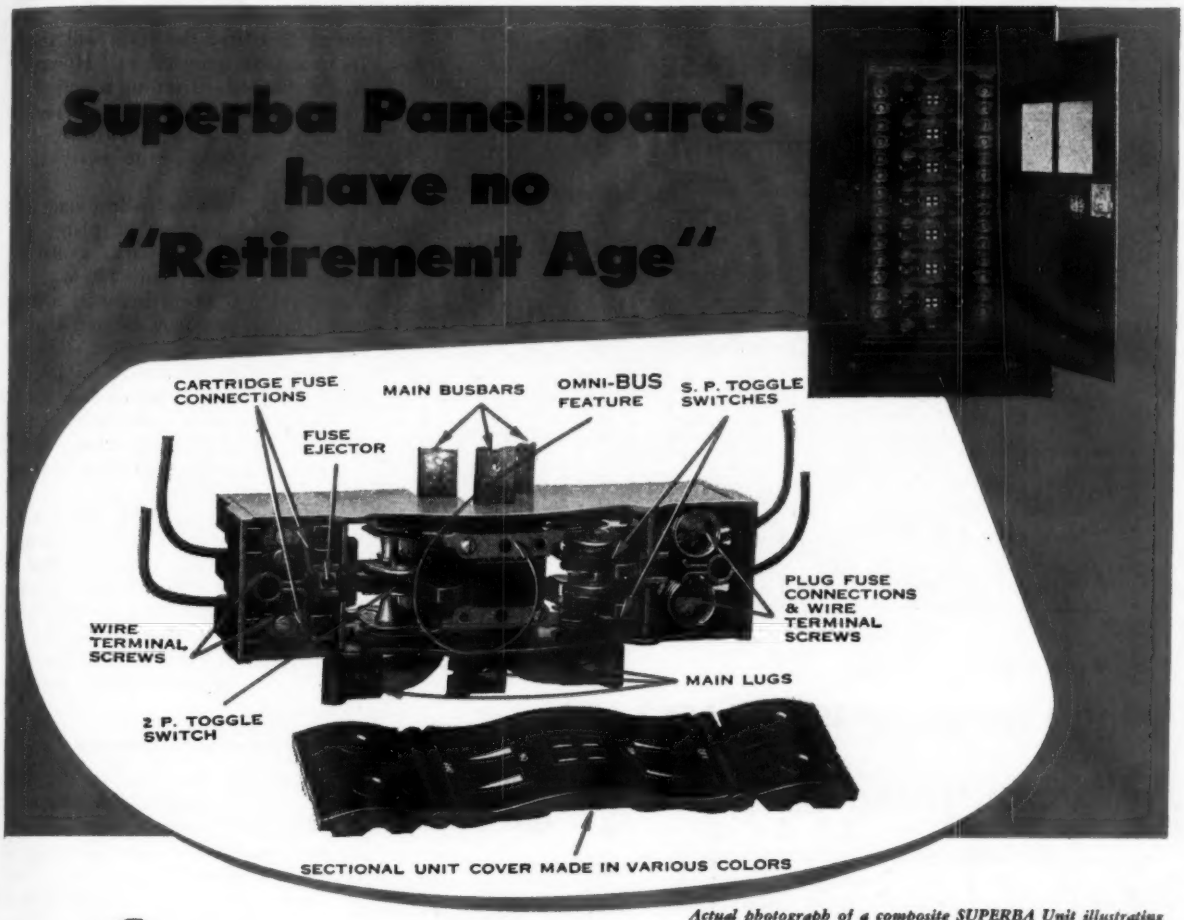
Some selenium rectifiers use a base plate of aluminum and this results in an exceedingly light stack which is easy to handle in assembly and reduces the weight of the product in which it is used. The use of aluminum also eliminates the possibility of the base plate rusting.

The selection of the proper stack depends upon a number of factors and it is therefore desirable to give the manufacturer full information regarding the proposed use and conditions of application. For instance, for a given d-c output, different stack designs are required if the d-c circuit feeds into a resistive load, an inductive load, a capacitive load, or a counter-electromotive force such as is encountered in battery charging or motor speed control. The size and spacing of the plates will also depend upon the ambient temperature and the time cycle of operation.

In general, for design purposes, a stack is considered as under continu-

*Mr. Loebenstein is electrical engineer for the Selectron Division, Radio Receptor Company, Inc., New York City, N. Y.

Superba Panelboards have no "Retirement Age"



Actual photograph of a composite SUPERBA Unit illustrating Flexibility and Accessibility for inspecting, replacing or interchanging Toggle Switches, Fuse Connections or Bus Bar arrangements without removing cabinet door or trim.

6 FEATURES ... the secret of adaptability

Many a panelboard has been put out to pasture because it couldn't meet the challenge of changing electrical conditions.

But you need never worry about obsolescence when you install BullDog SUPERBA. There are six separate features of design and construction to insure complete safety, peak performance, unusual convertibility, easy maintenance and long life. Look them over:

1. **Toggle Switches:** Sturdy construction to withstand abuse . . . positive operation . . . quick make and quick break.
2. **Switch and Fuse Safety Interlock:** Doors over fuse compartments are interlocked with toggle switches so that fuses are always "dead" when accessible, although fuses can still be tested in circuit.
3. **Fuse Ejector:** In cartridge fuse type. Just a flip of the finger ejects the cartridge fuse with safety and convenience.
4. **Omni-bus Construction:** Permits ready change of voltage and phase, and balancing of load on the phases, after the panel is installed and without removal of door or trim or disturbing branch circuit wiring.
5. **Isolation Compartments:** Bus bars, fuses and switches are in separate compartments, preventing flash-overs and localizing trouble from short circuits or defective fuses.
6. **Smart Styling:** Surface or face plates of bakelite have a curved design with a variegated grain finish, lending beauty and symmetry to the panel's appearance.

Check these six advantages of SUPERBA Panelboards, and write for complete details on this modern, completely flexible equipment.

SUPERBA is adaptable to any of these systems:

125/250 V. Single Phase AC or DC Edison System.
125/250 V. Grounded Neutral Single Phase AC or DC Edison System.
125/250 V. Grounded Neutral 3 to 3-Wire Single Phase AC or DC Edison System.
120/208 V. 3-Phase, 4-Wire AC.
125 V. 3-Phase to Single Phase AC.
125 V. 2-2 Wire.

BullDog Also Manufactures Vacu-Break Safety Switches—BUStribution DUCT—Switchboards—Circuit Master Breakers—Industrial Trol-E-Duct for Portable Tools, Cranes and Hoists—Universal Trol-E-Duct for completely flexible lighting.

BULLDOG

ELECTRICAL DISTRIBUTION SYSTEMS

BULLDOG ELECTRIC PRODUCTS COMPANY, DETROIT 32, MICHIGAN
In Canada: BullDog Electric Products, Ltd., Toronto. Field Engineering Offices in All Principal Cities

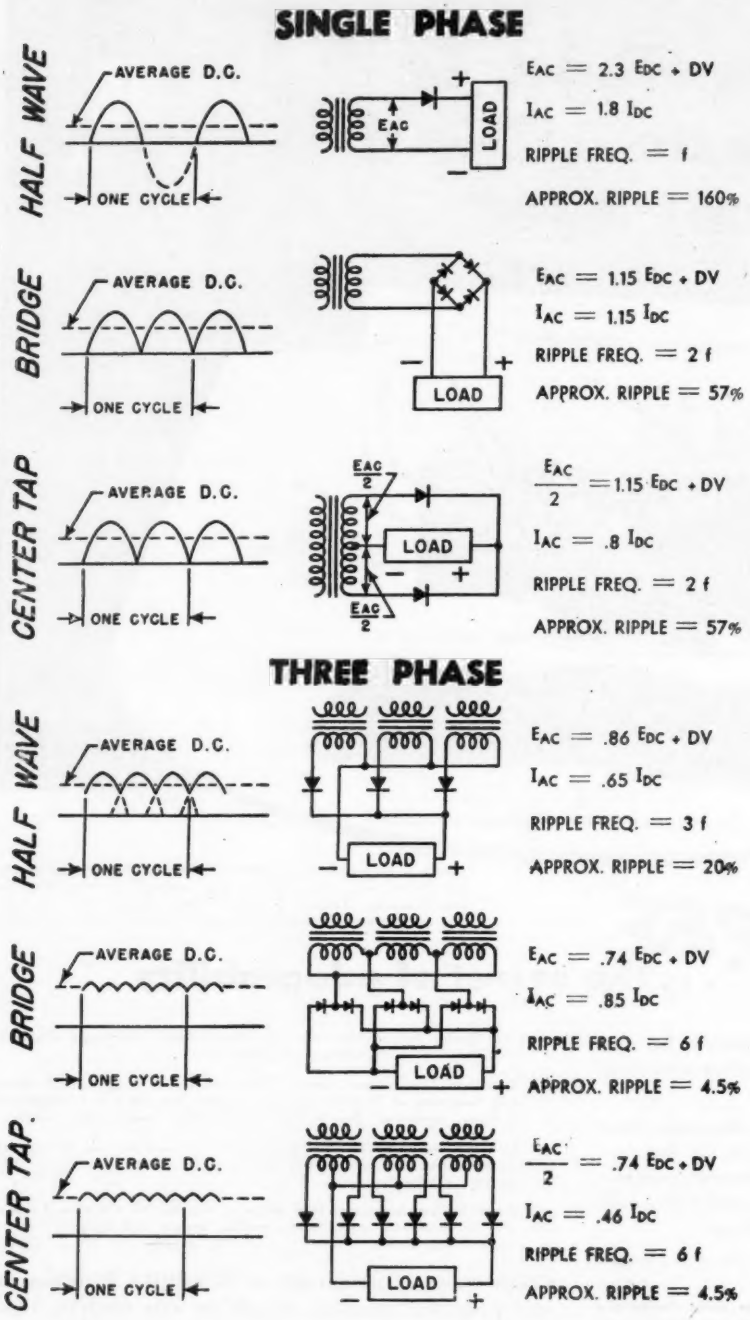


Figure 4. Illustrated above are the six common circuits in which selenium rectifiers are used, together with the approximate wave shapes under resistive load, ripple frequency, ripple percentage and the a-c/d-c ratio.

ous use if it is in operation for fifteen minutes or more at a stretch because during this time the stack will reach its maximum temperature. However, if it is on and off during a period of less than fifteen minutes, smaller plates may be used. Therefore, it is essential to specify the exact time cycle.

Other factors which affect stack design are the number of plates per stack. Where, in a stack, cooled by natural convection, only a few plates are assembled, as for instance two or four, the plates may be rated at a higher current capacity than when assembled in larger stacks of say twenty plates because in the smaller stacks air circulates more freely around the plates. Under forced cooling, plates may be conservatively rated at two and a half times normal rating.

When stacks are used with forced ventilation, it is essential to design the circuit in such a manner that if the circulation of air should be stopped for any reason, that the supply of current to the rectifier should also be interrupted. If this is not done the stack will quickly overheat and be ruined.

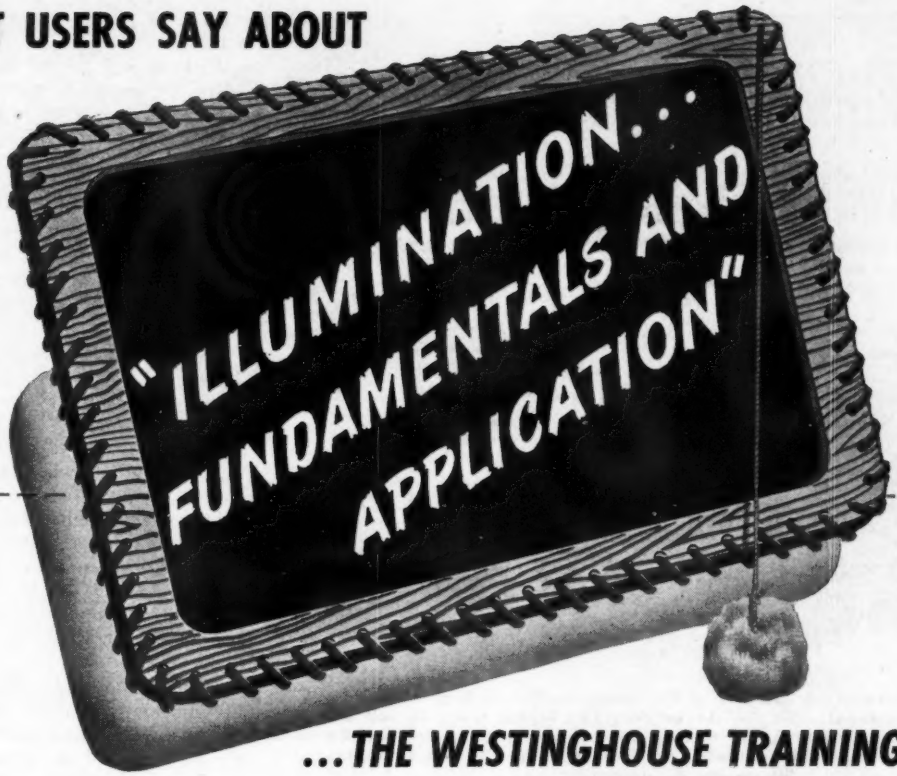
Efficiencies Obtained

As in all types of rectification, stacks may be supplied for half wave center tap and bridge circuits and each in turn for single or three phase rectification. Where considerable power is involved three phase rectification is to be desired because, besides balancing the circuit, it operates at a higher efficiency. In single phase circuits, with resistive load, it is not unusual to obtain an efficiency of 62%, whereas for battery charging the efficiency may be as high as 75%. Three phase circuits, on the other hand, regardless of application, may approach 85%.

In considering three phase application, however, it should be remembered that the half wave circuit is not as efficient as the full wave circuit. The stack, for half wave, will probably be less expensive than for full wave. While the transformer will be more expensive, the total overall cost will have to be considered. In designing equipment for sizable power applications the difference in sales price of the equipment for half wave as against full wave should be balanced against possible differences in the purchaser's power bill. This may result in the sale of a more expensive piece of equipment initially but result in an overall saving to the purchaser. Individual cases should be considered with these points in mind.

The demand for rectifier stacks is so varied as to currents, voltages, tem-

WHAT USERS SAY ABOUT



...THE WESTINGHOUSE TRAINING COURSE FOR LIGHTING SALES PERSONNEL

SOUTHERN CALIFORNIA EDISON COMPANY LTD.
"... this is the best approach to the lighting training problem I have had the privilege of seeing to date, and I recommend your course very highly to anyone faced with the problem of training a lighting sales staff."
—G. M. RANKIN, *Director of Lighting*

THE DETROIT EDISON COMPANY
"We feel that it is one of the finest contributions to the problem of training that has yet been produced."
—L. E. TAYLER, *Senior Engineer, Lighting Div.*

BIRMINGHAM ELECTRIC COMPANY
"... your eighteen Sound-Slide Film lessons ... proved to be an excellent course and the praise from our salesmen, both old and new, was instantaneous and constant."
—LUTHER T. CALE, *Commerical Sales Manager*

THE CINCINNATI GAS & ELECTRIC COMPANY
"We have used the Westinghouse Lighting Course and not only find it extremely valuable as a basis for training some of our inexperienced Lighting Engineers but found it very well received by our Lighting Engineers who have had many years experience in the Lighting field. We recommend this course very highly."
—A. J. RUTTERER, *Supervisor, Lighting Div.*

WEST PENN POWER COMPANY
"... former employees for whom the course was a 'refresher' ... remarked how well it screened the wide field of current lighting data to emphasize the essential points and bring them up to date quickly ... The new men found the 'Fundamentals' a logical introduction into a branch of engineering with which they were unacquainted, and they made surprisingly rapid progress."
—HARRY RESTOFSKI, *Sales Promotion Manager*

WHAT IS THIS COURSE?

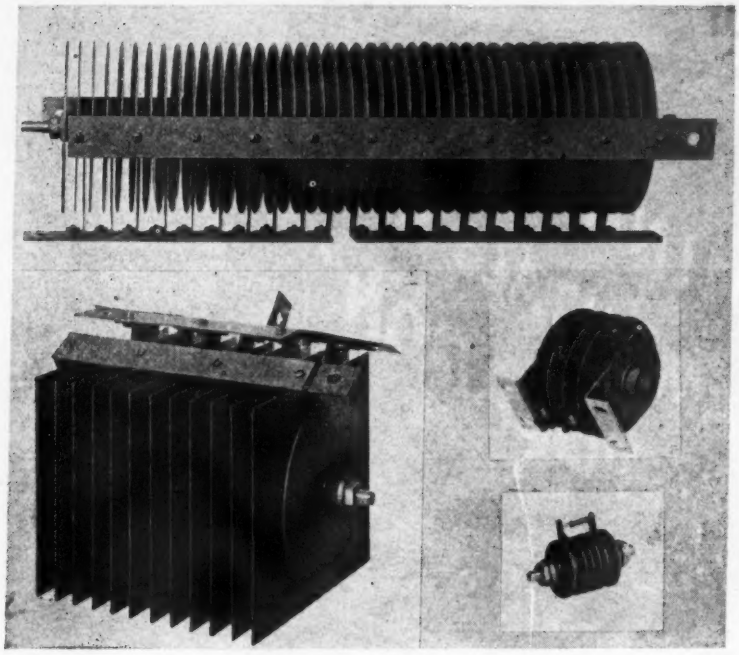
It is designed specifically for lighting sales personnel of electric-service companies. The content was determined by asking electric-service companies what they needed and wanted. Users are charged $225 for a set of course materials:

18 sound slide films • 10 sets of 18 lesson books each
1 instruction manual • 1 lighting handbook

HOW DO YOU GET IT?

Call or write to your nearest Westinghouse representative, or write direct to Lamp Division, Westinghouse Electric Corp., Bloomfield, N. J. For more information, ask for "Illumination ... Fundamentals and Application," Form A-4809—a descriptive sheet explaining the lighting course.

Westinghouse *LAMPS FOR SEE-ABILITY*



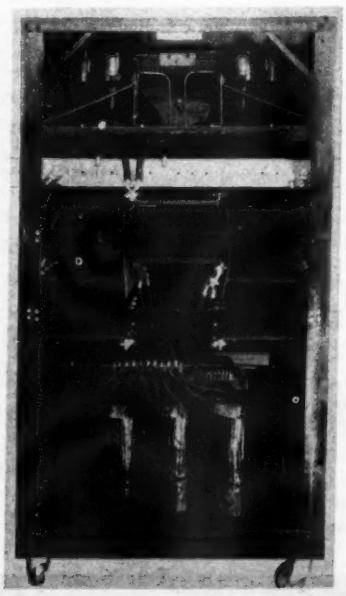
Typical selenium rectifiers in order of size from smallest to largest: (1) ½ wave, 48 volt a-c input, 150 ma. d-c output; (2) bridge type, 24 volt a-c input, .6 ampere d-c output; (3) three phase bridge type, fan cooling, 24 volt a-c input, 60 ampere d-c output; (4) center tap type, 24 volt a-c input, 80 ampere d-c output.

peratures, and circuit applications that in general it is not practical for manufacturers to carry stacks in stock. However the individual plates are available for ready assembly into a great variety of series and parallel plate arrangements as needs may dictate.

During the first 10,000 hours of operation rectifiers age to a certain degree. During this period the forward and reverse resistances increase gradually after which time they become stabilized. In some applications this increase in resistance, with a corresponding drop in d-c output voltage, may be ignored while in other cases it may be necessary to compensate for it by a 5% to 10% increase in the a-c input voltage.

Voltage regulation varies from approximately 15% with new stacks to 20% when aged. The use of cooling fine or forced air cooling may increase the regulation to 25%. Fig. 3 shows the variation of output voltage with current changes for a typical single phase bridge rectifier.

The a-c input voltage to be applied to Selectron selenium rectifiers for a given d-c output voltage is governed by the circuit arrangement, the type of load and the voltage drop. Various rectifier circuit arrangements, approximate wave shape, and circuit factors involved for resistive or inductive loads are shown in Fig. 4. The voltage drop is determined by the number of series rectifier plates and the drop across each plate. Curves are given in Fig. 2.



This is rear view of 12 volt, 3000 ampere rectifier unit showing selenium rectifier components. Note transformer at bottom, fans at top.

With respect to the various types of dry disc rectifiers, wherever weight and size are factors, selenium rectifiers should prove most advantageous in most cases. Tests indicate the following relative weights at one ampere output: selenium, 1; magnesium copper sulphide, 1.4; copper oxide, 3.4. In addition, sulphide cells seem to have a shorter life than selenium cells as well as seeming to be definitely limited to low voltage use.

Selenium excells as against both magnesium copper sulphide and copper oxide cells in having a much higher reverse voltage. The oxide runs about one-quarter that of selenium. This means that where voltages over six volts are involved the selenium, by virtue of this higher reverse voltage, will require fewer plates almost certainly resulting in a lower price in addition to lower weight and volume. The forward drop is approximately the same in both oxide and selenium types.

Besides the high efficiency, long life and low weight of selenium rectifiers using aluminum plates, they have the advantage of being instantly ready for use at any time, as they need no warming up period. Also their efficiency is uniformly high over a wide load range and they involve no standby losses when not under load. In addition, they have the favorable feature of almost 100% power factor.

There is no hard and fast rule by which it may be decided where selenium rectifiers may best be applied from an electrical, mechanical and economic standpoint. As already indicated the increasing demand for, and use of, selenium rectifiers, especially those incorporating the use of the aluminum base plate, indicates a general wider field in which they are proving advantageous.

Smaller Network Protector

THE BENEFITS of the secondary network for power distribution have been extended to the edge of towns by the development of a new network protector for light duty. This new Westinghouse protector is smaller and lighter by one-half than the previous light-duty protector, which now becomes a medium-duty unit.

Simplifications have been possible because of the relatively light demands made on it by the service intended. For example, no phasing relay is required because the protector does not need to be sensitive to small power reversals. The unit is rated at 300- and 600-amperes, 250-volts.

TIE-IN AND *Cash-in* WITH ARVIN

One of a series of Arvin sales messages appearing in leading national consumer magazines.

Building a big demand and sure profits for dealers who have Arvin Portable Electric Heaters in stock—consumer advertising is appearing regularly, from September through December, in one or more of the leading national magazines pictured below . . . aggressive, selling messages like the one reproduced at right.

Tie-in your store with this appealing advertising—and you'll cash-in splendid profits on the Arvin Portable Electric Heaters you have in stock.

ARVIN

. . . the name on products of experience from

NOBLITT-SPARKS INDUSTRIES, INC., Columbus, Indiana

I'm Tellin' the World!

HOW WARM MY **ARVIN** KEEPS ME

ARVIN *Portable* ELECTRIC HEATERS

WHEN YOU HAVE AN ARVIN Fan-Forced Electric Heater in your bathroom, every one in your family will enjoy it so much they'll feel like tellin' the world about it.

Arvin's circulating heat surrounds you with comfort while you bathe or dress . . . keeps dad warm while he shaves . . . guards against chills during baby's bath.

Your toe flicks a switch—starts 45 cubic feet of warm air per minute billowing around you, any time or place, to chase chills away.

Carry it easily to your bedroom, game room, den . . . plug it in any 110 AC outlet . . . enjoy *instant* comfort.

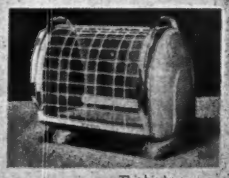
Beautifully built and finished in ivory and other attractive colors. Heating element and fan are enclosed—safe with children.

Another Arvin—the radiant heater shown at right—comfortably warms any cold spot in your home or office. And any Arvin you choose will give you long, dependable service.

Many thousands are now in use. All the new Arvins are Underwriter's listed for safety. Sold by electrical, hardware and department stores.

FAN-FORCED TYPE—chases chills from bathrooms and other cold spots about the home. Many used in offices, trailers and camp cottages. Gives instant, fan-forced heat. Easily carried—hand grip in back. Three handsome models, priced as low as **$9.45***

RADIANT TYPE—serves as a portable electric fireplace. Just the thing for early morning comfort when the furnace fire is low.



This big heater provides quick comfort and reflects a cheerful fireplace glow in your home or office. **$8.95***

*Add prices slightly higher in the far west.

ARVIN

. . . the name on many fine products from

NOBLITT-SPARKS INDUSTRIES, INC., Columbus, Indiana

ARVIN Top Right Radios • Electric Irons and Appliances • Metal-Chrome Dinette Sets
Outdoor Metal Furniture • Laundry Tubs • Ironing Tables • Car Heaters

Capitol Comment

By Paul Wooton
Business Press News Bureau

An informal discussion of the news from the nation's capitol—news that affects business and industry, directly or indirectly.

WHILE the business press is non-political it is deeply interested in the Department of Commerce. For that reason it is concernod with the controversy precipitated by the Madison Square Garden speech of Secretary Wallace.

Business paper editors probably are unanimous in their desire to see a Department of Commerce that will devote itself assiduously and courageously to the fostering, promoting and developing of the interests of business and industry, as was the intent of Congress.

Honest business should be able to look upon any Secretary of Commerce as its champion, regardless of party.

Job Calls for Real Champion of Business

Certainly there is sentiment in the business community to see the secretaryship of the Department of Commerce in the hands of one who will give his full time and attention to the carrying out of the provisions of the department's organic act. That act provides for the promotion of domestic and foreign commerce, for preserving the American free enterprise system, for stimulating the profitable operation of industry in order to achieve full and efficient production and employment; and for assistance in the solution of problems of construction, distribution, marketing and transportation as well as the advocation of such government policies, procedures and laws as will stimulate industry and commerce.

While agriculture and labor have had doughty champions through the years, Commerce has had only one secretary who did an outstanding job for business. That secretary was Herbert Hoover.

Survey of Savings Valuable to Business

It is of value to those who produce and distribute goods, and to those who provide services, to know something of the intentions of persons with money to spend. Significant information of that type is contained in the recently completed National Survey of Liquid Assets made by the Federal Reserve System.

Results were obtained by a scientific sampling procedure along the lines that have been used in the polls of political and other opinion. The fact that such conservative institutions as the Federal Reserve and the Bureau of Agricultural Economics are relying on this method of appraising the volume of assets held by the public and of anticipating how they will be used, is a departure which shows that economic sampling is taken seriously. If the results prove to be accurate, it will do much to increase the illumination of the fields in which business must be done.

This latest study shows that people are planning to spend over $5,000,000,000 for automobiles and $4,000,000,000 for other consumer durable goods such as refrigerators, washing machines, radios and furniture. Altogether some $15,000,000,000 was available for use at the time of the survey. Information as to what the people plan to do with the vast sums in their hands is important, not only to business, but to the authorities whose duty it is to do all in their power to prevent harmful economic developments. It provides a basis for formulating public policy.

New Commissioner Off to Good Start

Ewan Clague is getting away to a good start as Commissioner of Labor Statistics. He is a fine example of an unassuming, meritorious, conscientious public servant. He stands high among the statisticians.

Politics certainly was not a consideration in his selection. There is every reason to believe that he has no commitments to labor, to management, or to any political faction or ideology. He is in every sense a professional statistician of unquestioned integrity.

The removal of A. F. Hinrichs was the result of labor union pressure. It is not an incident of which the administration can feel proud.

There is no reason to assume, however, that Mr. Clague is any more acceptable to the labor unions than was Mr. Hinrichs. For a long time a curious situation has existed. Business has manifested its confidence in the figures of the Bureau of Labor Statistics. Labor unions have shown a preference for Commerce Department figures.

Mr. Clague has had extended government service. He has not been particularly successful as an administrator and he is not always decisive. However, he is concentrating on statistical problems and is turning over most of the administrative functions to his chief assistants. He has a particularly able deputy in Mrs. Aryness Joy Wickens.

Moreell Comments on Supervisors' Unions

Importance is attached to views expressed by Admiral Ben Moreell with regard to the organizing of supervisors. Admiral Moreell is in immediate charge of the coal mining industry for the government.

He calls attention to the fact that there are industries where the supervisors are organized "where they do not seem to have great difficulties as a result of such organization."

Admiral Moreell points out that there are basic differences between the mining and manufacturing industries "which may or may not justify the strong stand taken by the operators against the organization of supervisors".

Continuing Admiral Moreell says: "I do feel that there is a great deal of apprehension on the part of the managers of practically all mass production industries in regard to this question, and if we can arrive at a solution which will be acceptable to both management and labor, and which will allay this apprehension, we will have made a real contribution to industrial peace."

Fight Over Control of Unions Coming Up

A greater fight in the new Congress over restrictions on labor union power is brewing. It is a little too much to expect the unions to admit that they made a mistake in demanding wage advances before peace-time production was organized. If they now will adopt a policy of encouraging per capita output and of discouraging the buying of scarce commodities in addition to suspending demands for increased pay, they can improve their position with the public before Congress takes action.

Prices have gone up more than wages. There is no doubt that labor can force higher wages but unless it

(Continued on page 72)

Another pace-setter!

The MODERN FLUORESCENT KITCHEN FIXTURE by MASTERCRAFT

2 or 3 lite kitchen fixtures, individually inspected, wrapped and boxed. Also in master cartons containing 8 individual boxes. Two types of mounting — easy plug in type for rapid installation in existing socket or Underwriter's approved installation on 5" and 6" collar and crossbar.

THE REPOSE—An attractive, practical bed lamp, richly designed and finished in flocked "Velvetone" choice of five colors.

STANDARD CHANNELS—For individual use or continuous strip lighting. Made of heavy gauge steel, rust proofed.

THE EXECUTIVE—Styled for appearance and utility. Bronze plated finish on metal casting creates beautiful lustre.

These features mean volume sales..

• HANDSOME, DISTINCTIVE DESIGN • MAXIMUM LIGHT OUTPUT • PERMANENT FINISH • DEPENDABLE SERVICE

..for the MASTERCRAFT quality line!

All MASTERCRAFT products done in enamel feature an exclusive long-life finish . . . it cannot chip or crack—will not discolor or turn yellow—and its high reflection value provides maximum light output.

The complete line—craftsmen made right down to the smallest bracket—is popular wherever lamps and fixtures are sold.

All parts and accessories are made in the MASTERCRAFT plant, a policy which insures prompt filling of orders. That's why you can depend on MASTERCRAFT—for quality and fast delivery! And that's why —more and more—distributors are ordering MASTERCRAFT!

Write for prices and selling policy today; no obligation.

Mastercraft ELECTRIC CO

CRAFTSMEN IN FLUORESCENT LIGHTING

181 BRUCE STREET, NEWARK 3, NEW JERSEY

NEWS of the INDUSTRY

Home Lighting Promotion Stressed by Utilities

HOME LIGHTING will be aggressively promoted during 1947 by more electric utility companies than was ever the case in any prewar period, with home lighting advisory services, promotion through dealers and extensive local advertising of the new certified lighting equipment playing leading parts, it is disclosed in a survey of the industry's plans for lighting promotion just released by the Home Lighting Committee, Commercial Division, Edison Electric Institute. The survey includes reports from eighty-seven companies serving 48.3 per cent of the total residential and farm customers of the U. S.

Eighty-four per cent of the utilities reporting will furnish home lighting advisory service, with specially trained employees calling at customers' homes. Promotion of home lighting through dealers will be developed by 73 per cent of the companies, and 53 per cent will sell lighting equipment to customers, in conjunction with dealer cooperative plans.

Newspaper advertising of home lighting will be employed by 83 per cent of the utilities, and radio advertising by 52 per cent. A total of 85 per cent will advertise the new certified portable lamps, and 71 per cent will advertise certified home lighting fixtures.

Home lighting advisory services cost utilities an average of 63 cents per dollar of estimated annual revenue secured in a typical prewar year, the survey reveals. It is planned by 49 per cent of the reporting companies to include this advisory service in their home service departments, with 17 per cent organizing separate home lighting advisory departments. The average home service representative will spend one-third of her time on home lighting services to customers, the survey states. In 91 per cent of the reporting companies, prospects will be referred to dealers by the home service staffs.

Utility plans for promotion through dealers which are discussed in the report include educational meetings for trade groups, sales campaigns on specfic types of equipment, and the supply of display materials for use by dealers. Sixty-five per cent of the utilities will promote home planners groups, which will organize customers who plan to build homes to hear discussions on home design, building, financing, etc., by experts in these fields.

Merchandising utilities plan aggressive sales campaigns, as soon as equipment is available, and will concentrate largely on lamp bulbs, floor and table lamps.

Lecture demonstrations and showing of films on various aspects of home lighting to customer audiences, associations, and civic groups will be employed by 79 per cent of the reporting companies, who expect to reach over 2,000,000 persons through this method.

The certification programs of portable lamps and residential fixtures will be strongly supported with local advertising by practically every utility which plans an aggressive program of home lighting promotion, the report states.

The complete report, entitled "Utility Home Lighting Promotion, 1946-47," is available from the Edison Electric Institute, 420 Lexington Avenue, New York 17, N. Y. at 40c per single copy.

Mills-Morris Company Occupies New Building

THE NEW BUILDING of the Mills-Morris Company in Memphis, distributors of radios, radio parts, electrical appliances and supplies, adjoining their present location at 171 South Dudley Street, and to be completed this month, will give this company a total of 47,000 sq. ft. of space. It will have a combined frontage of 215 ft. on South Dudley Street and will give this 27-year old company one of th emost modern and up-to-date dis-

REPRESENTATIVES ADMIRE NEW PACKAGING—A. O. Samuels, vice president and general manager of the Casco Products Corporation points out the new packaging of the company's post war line of heating pads at the first sales gathering of the Casco representatives since V-J Day. With Mr. Samuels are representatives of McDonald and Shaw Company, Dallas, Texas; W. Bert McDonough Company, Atlanta; Hynes Sales Co., Charlotte, N. C. They are (left to right) E. Jack Hogsed, W. Bert McDonough, "Van" Hynes, Willard H. Ihlefield, J. B. McDonald

IRV-O-SLOT for all needs from IRVINGTON -

headquarters for bonded varnished SLOT insulations!

Irv-O-Slot provides the electrical protection necessary for top-quality slot insulation. Moreover, it possesses the mechanical strength required to withstand punishment received during motor assembly and operation. A complete range of varnished fabrics duplexed to selected rag and fish papers allows wide selection. All the base fabrics secure their high dielectric strength from uniform coatings of Irvington-formulated insulating varnishes.

TYPES: Bias and straight-cut varnished cambrics, black or yellow, are standard . . . varnished nylon, rayon, cambric, style S.I.C., silk, and Fiberglas are also bonded to the tough backing papers on special order.

BONDING AGENT: When forming the slot cell, the Irvington binder permits sufficient slippage to prevent rupture of the insulating varnish film, yet the bonded material does not delaminate or bleed.

THICKNESSES: Standard Irv-O-Slot insulations are supplied from .011" to .028". Some of the special combinations are as thin as .009". For slot insulation on smaller fractional horsepower motors, all varnished fabrics are available without paper backing.

Additional information and test samples gladly supplied.

IRVINGTON *Varnish and Insulator Company* IRVINGTON 11, NEW JERSEY, U.S.A.

Authorized distributors in: BALTIMORE • BLUEFIELD, W. VA. • BOSTON • CHARLOTTE • CHICAGO • CLEVELAND • DALLAS • DENVER • LOS ANGELES • MINNEAPOLIS NEW HARTFORD, N. Y. • NEW YORK • NEW ORLEANS • PHILADELPHIA • PITTSBURGH • ST. LOUIS • SAN FRANCISCO • SEATTLE • HAMILTON, ONT., CANADA

tributing houses in the South.

Approximately 4,000 sq. ft. will be devoted to display space of electrical appliances, radios and parts.

The company, which has 24 salesmen on the road, operates seven stores, including Nashville, Union City and Milan, Tennessee, and Greenville and Tupelo, Mississippi, and Jonesboro, Arkansas.

A new branch of the Mills-Morris Company, Memphis, opened in September in Jonesboro, Arkansas, and is located at 216-220 Creath Street under the management of W. M. Lacy.

Shortages Still Retard Electrical Production

THE ELECTRICAL manufacturing industry will not achieve full-scale production until spring, probably not until July, 1947, according to a survey of 100 member companies made by the National Electrical Manufacturers Association.

The companies, which represent every branch of the industry, were virtually unanimous in the belief that the problem of material shortages had not been alleviated to any substantial degree, nor is there prospect of permanent solution in the near future.

While the shortages are being felt in all phases of the industry, they are especially marked in the production of materials needed in the housing field, such as electric wiring materials, wire required for extensions of electric service, and small motors, which affect the production of electric appliances.

One manufacturer of wire, for example, stated that shortages of raw materials, such as lead, natural rubber, cotton yarns and cotton sheeting, as well as copper, are at present affecting production very materially. "On some lines," he said, "we could increase production by as much as 40 per cent if we had the necessary cotton yarns and sheeting. On lead cables we could increase production 100 per cent if we had the lead."

A manufacturer of transformers estimated that it will take a full year before copper is in adequate supply.

Another manufacturer declared that many of the articles appearing in the press stating that material supplies have shown improvement were entirely too optimistic.

"We are having just as much, if not more difficulty, than before the recent optimistic outburst," he said, "in securing enough copper magnet wire, iron castings and other smaller items to enable us to maintain a part of our possible production.

"Another unfortunate condition," he pointed out, "is that because of newspaper and other comments regarding 'enormous backlogs' and predicted tremendous requirements during the next five years, labor has the idea that every electrical manufacturer will have all the business he can handle, with practically no sales expense, and little if any thought regarding the cost of labor as a whole, or respecting the differential labor rates for competing manufacturers in various districts."

Castings a Key Problem

As pointed out earlier in the year by R. L. White, President of NEMA, the obtaining of castings for peacetime production has proved to be a real problem due to the fact that workers do not want to work in the foundries, even at premium pay.

One manufacturer complained that "the supply of small iron castings is most uncertain because of the pig iron situation and lack of skilled help. Very few men even care to try to work in foundries, so beginners are also scarce."

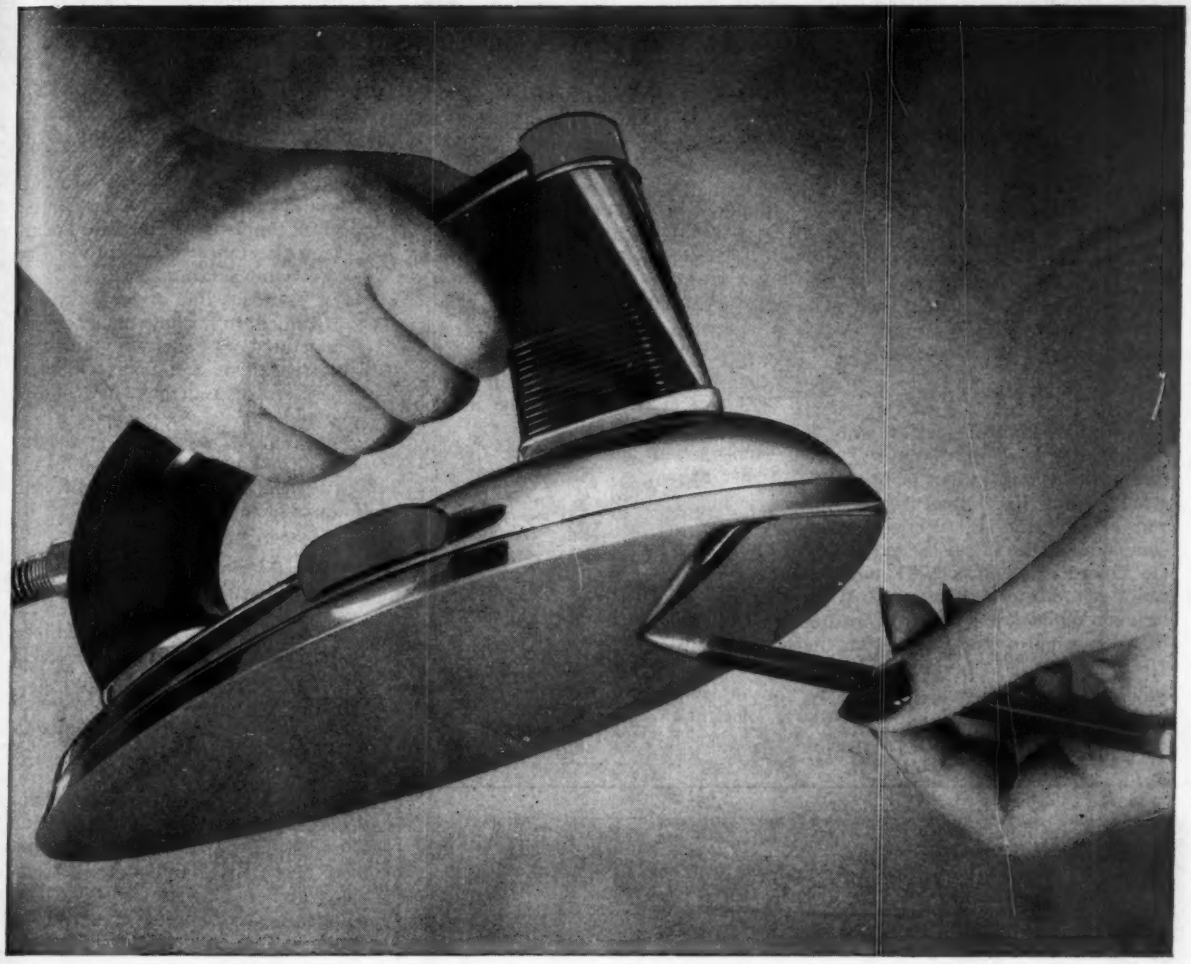
A manufacturer of electric conduit fittings and iron castings said: "We are affected by a labor shortage in the foundry as labor seems to be unwilling to learn the moulding trade." Another manufacturer pointed out that, despite shortages of pig iron and labor in the face of unprecedented demand for foundry products, recent governmental policies have been directed toward obtaining a higher percentage of foundry output for the housing program, thus creating a serious condition for the manufacturers of such products as larger motors.

Shortage of Labor

Most of the companies replying to the survey reported a shortage of labor, especially women workers. "We are experiencing difficulty in obtaining a sufficient number of employees for various departments," one manufacturer said; "we need die makers, women for light assembly work, press operators, common labor and office workers. People who will work on second and third shifts are hard to find."

One employer said that "labor available for work requiring the handling of sticky materials which soil the hands, as far as female help is concerned, is almost nil."

Reports from various sections of the country, especially larger cities, stress-



TRU-HEAT CONTROL reacts to minute changes in temperature faster than ordinary types of iron heat regulators. It holds heat within narrower limits than five other leading makes tested.

The soleplate is part of the heat control!

THE SOLEPLATE of the new General Mills Tru-Heat Iron expands and contracts during ironing — and that minute action makes and breaks the heating circuit. Thus, the very surface in contact with the fabric being ironed controls ironing temperature. This super-accurate control of ironing temperature means valuable protection for even the most delicate of the modern types of fabrics.

But that's not *all!* The new scientifically shaped *4-Way, Full-Vue Soleplate* covers more ironing at every stroke . . . the all around *Button Bevel* permits ironing under buttons with any part of the iron edge . . . the unique *Safety Side Rest* ends tiresome lifting . . . the *Tru-Heat Fabric Selector*, marked with both fabric and actual temperature settings, makes it possible to iron every fabric at its own best temperature. These vital new features work together to make ironing—*and selling*—faster and easier!

NOW BEING DISTRIBUTED IN: Minnesota, Nebraska, the Dakotas, Wisconsin, Iowa, Upper Michigan, Montana, Idaho, Wyoming, Utah, Colorado, New Mexico, and parts of Illinois and Indiana. Other states to follow soon! General Mills, Inc., Home Appliance Dept., Minneapolis 13, Minn.

THE IRON SPONSORED BY Betty Crocker

Betty Crocker is a trade name of General Mills, Inc.

ed the Unemployment Insurance system as one of the determining factors in keeping women from taking jobs at present time.

The majority of companies declared also that labor efficiency was below that of 1941, in some cases running as low as 65 percent of the prewar standard. This is attributed to a variety of factors, aside from the responsibility which may be placed upon labor itself for this condition. One factor is that working forces are being increased in many plants, and considerable time and effort must be devoted to training new workers.

Small Motors Scarce

The production of small motors is running from about 50 to 80 per cent of capacity in various plants, principally owing to shortages of copper and other materials, although most companies in this field are producing far in excess of their 1941 rate because of wartime expansion. With unprecedented peacetime demand, however, small motors are still on the critical list, a shortage being felt particularly by appliance manufacturers. Several of the companies reporting have increased plant capacity under construction, but this, too, is being delayed by building material shortages.

A manufacturer of small appliances stated: "Motors still continue to be one of our bottlenecks. Production is a touch-and-go proposition with first one material shortage, then another, holding up up. Our volume of production in the last six months of this year, therefore, will run between 60 and 80 per cent of what it was in the same period of 1941."

One manufacturer of ranges, refrigerators and water heaters estimated that production in his plant for the last half of this year will be at about 50 per cent of the 1941 rate for the same period, and attributed the difficulty to material shortages and a lack of component parts.

Federal Electric Buys St. Louis Company

THE PURCHASE of the Wurdack Company, of St. Louis, 50-year old manufacturer of electrical panel boards and switchboards, by the Federal Electric Products Company of Newark, has been announced by Louis W. Cole, President of Federal Electric.

At the same time it was also disclosed that the Cole Products Company of Long Island City, N. Y., long affiliated with Federal Electric, is being merged in to the Federal Electric Products Company.

Acquisition of all manufacturing, distribution and sales facilities of the Wurdack company will increase Federal Electric's ability to serve the Middle West and South.

The Wurdack line of products will be expanded to include many items manufactured by Federal in the East. Plant space in St. Louis will be doubled and considerable new equipment added.

The Wurdack Company in the future will be known as the Wm. Wurdack division of the Federal Electric Products Company.

Noma Absorbs Pollack Manufacturing Co.

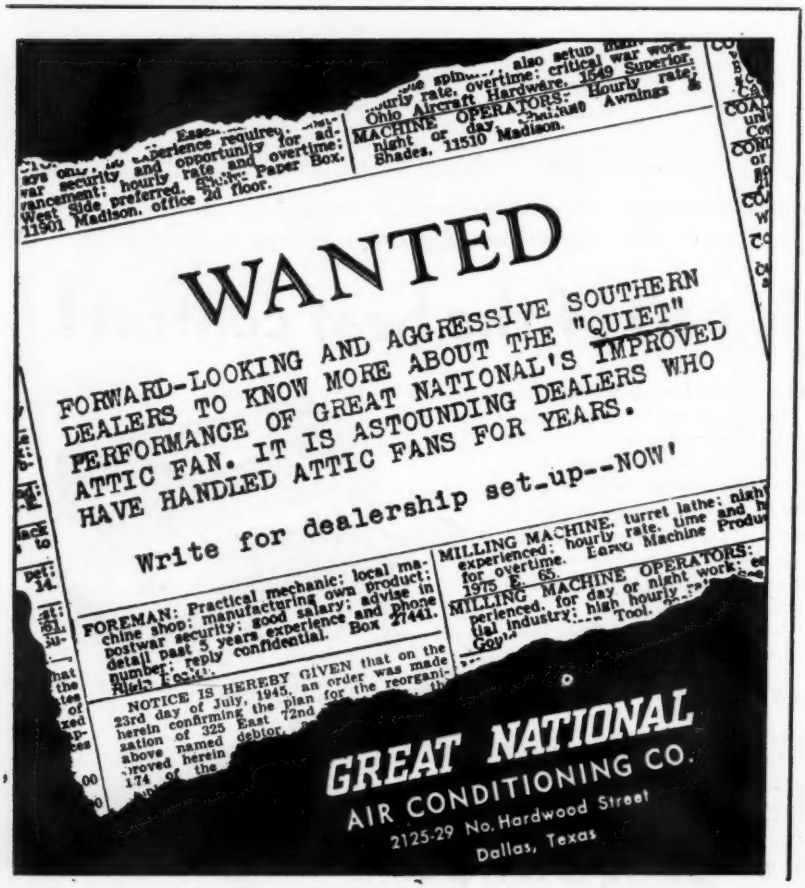
ANOTHER MAJOR expansion by Noma Electric Corporation, involving the absorption of Pollak Manufacturing Company, which will substantially enlarge Noma's production of durable household goods, was announced recently.

In a joint announcement, Henri Sadacca, president of Noma Electric Corporation, and Leo L. Pollak, president of Pollak Manufacturing Company, disclosed that directors of both companies have approved the merger which will be effected through an exchange of stock.

Special meetings of the stockholders will vote on the merger.

Mr. Pollak, Carl Schlesinger, and Peter Calabro, vice-presidents of the Pollak Company, will become vice-presidents of Noma Electric Corporation. Mr. Pollak and Mr. Schlesinger will become directors of Noma.

Substantial expenditures previously contemplated for enlargement of productive capacity at several Noma plants will be made unnecessary by the consolidation, Mr. Sadacca said. Pollak Manufacturing operates six plants at Arlington, Kearny, East Newark and Newark, all in New Jersey, completely equipped to manufacture electrical goods, large and small, metal products, screw machine parts and tools and dies.


WANTED
FORWARD-LOOKING AND AGGRESSIVE SOUTHERN DEALERS TO KNOW MORE ABOUT THE "QUIET" PERFORMANCE OF GREAT NATIONAL'S IMPROVED ATTIC FAN. IT IS ASTOUNDING DEALERS WHO HAVE HANDLED ATTIC FANS FOR YEARS.
Write for dealership set-up--NOW!
GREAT NATIONAL
AIR CONDITIONING CO.
2125-29 No. Hardwood Street
Dallas, Texas

Knoxville, Tenn. — Serve All Appliance Company, handling a complete line of home and farm appliances, radios and records, etc., has just opened for business at 2309 North Central Street. J. O. Broyles is general manager.

HITCH YOUR WAGON TO THESE STARS

You can take your pick of these five star finance plans and get exactly the terms and conditions that will make your time-sales business most profitable to you.

Every one of them has been designed to meet certain operating requirements, depending upon local conditions, competition, type of customers, character of risks, your profit objectives and your sales potentials.

Call in a Commercial Credit representative. We have representatives in all the principal cities of the United States and Canada. Question and examine every feature of every plan.

Nowhere else, we believe, will you find available such a complete line of financing plans. But we leave it to you to compare and decide.

One will stand out as the best for *you*.

COMMERCIAL CREDIT CORPORATION

305 OFFICES IN PRINCIPAL CITIES OF UNITED STATES AND CANADA

Names in the News

R. S. Keefer has been named sales manager of The Okonite Company, Passaic, N. J., manufacturers of insulated wires and cables. He succeeds **Edward J. Garrigan,** vice-president in charge of sales, who died in July.

Mr. Keefer, formerly assistant sales manager of the Company's Hazard Insulated Wire Works Division started his career in the Hazard insulating mill at Wilkes-Barre, Pa., in 1922, later entering the sales department in which he has been active for the past 20 years.

* * *

James R. Kearney, Sr., chairman of the Board, announced recently that **Norman E. Schaumburg** has been appointed general purchasing agent for the James Kearney Corporation.

Mr. Schaumburg is an electrical engineer, having graduated from Washington University in St. Louis. He has been with the Kearney organization for nine years, most recently in the capacity of assistant sales manager of the St. Louis office.

Charles W. Gossett, an engineering graduate from the University of Kansas, takes ofer Mr. Schaumburg's job in the Sales Department. Mr. Gossett was formerly assistant to the chief engineer.

The job of assistant to the chief engineer, vacated by Mr. Gossett, is being filled by **John Finley.** Mr. Finley is a graduate electrical engineer and has had several years experience with the Kearney organization—as assistant test engineer and assisting in the design of fuse links.

* * *

C. H. Porter, well known to the trade for many years, has been appointed manager of industrial, wholesaler and contractor sales of the Anaconda Wire & Cable Co.

Mr. Porter was formerly Eastern sales manager and prior to that district manager of the company's Cincinnati territory.

In his new capacity Mr. Porter will supervise the sales and servicing of all products and endeavor to streamline and better coordinate relationship between customers, sales and production departments.

J. M. Hudson, Decatur, Ga. store salesman, has been promoted to the position of sales training supervisor, according to an announcement by **W. B. Farnsworth,** manager of Georgia Power Company's merchandise division.

Mr. Hudson succeeds **William Retzbach,** who resigned last April.

* * *

The appointment of **Maurice F. Moriarty** to the position of Florida district manager of the Proctor Electric Company was announced by **Oswald MacCarthy,** eastern regional manager.

Mr. Moriarty joined Proctor in 1944 as a member of the executive staff at

Maurice F. Moriarty

Philadelphia headquarters. He replaces the late **Frank C. Barrington,** former district manager of that territory.

Mr. Moriarty is familiar with the Florida district, having been headquarters' representative at the recent partnership meetings held with Proctor distributors throughout the country.

* * *

Joseph W. Mullally has been named manager of utility sales for **Anaconda Wire & Cable Co.** Mr. Mullally was formerly manager of the company's bare and weatherproof sales and prior to that served as the

J. W. Mullally

HANGING CHAIN SUSPENSION
FIXTURES IS AS EASY AS
HANGING A PICTURE—WITH
HYDEE HANGER*
Just connect wires, screw to outlet box and the job's done—in a few minutes. Fits standard 4" or 3¼" outlet box or plaster ring. Self-grounding—you can use 2-wire cord and plug. Complete with receptacle, two 5-foot chains, "S" hooks and cord clips. Nothing else to buy.
$1.50
Each List
Day-Brite Lighting, Inc., 5435 Bulwer Ave., St. Louis 7, Mo. Nationally distributed through leading electrical supply houses.
905
IT'S EASY TO SEE WHEN IT'S
DAY-BRITE
Lighting
*Patent No. D-141024. Others pending. Underwriters approved.

MONARCH'S "SIDE-HEET" COOKER

WRAPS THE HEAT AROUND THE MEAT

When you talk "deep well" cookers, remember there's a vast difference between bottom heat and side heat.

With Monarch's exclusive "Deep-Heet" Cookers, the heat is wrapped around the food. Area of heat application is more than 4 times greater. The result is oven-type heat which bakes, not stews. Meats are more tender, tastier, cook faster. Chicken, golden-brown, falls off the bone. Foods do not stick to bottom – stirring is unnecessary.

It's the side heat that makes the big difference – one of the many exclusive Monarch features that enable Monarch dealers to look with confident optimism into the competitive days to come.

MALLEABLE IRON RANGE CO. 4806 Lake St., Beaver Dam, Wis.

Sauerkraut and spareribs respond to Monarch "side-heet" in a way that gives this stand-by American dish a new mouth-watering appeal.

A 2½ lb. whole chicken, or 5 lbs.of jointed chicken, can be dry roasted to a tender, even brown.

If baked pork chops are on the menu, here is a clever way to cook them — a natural for "side-heet."

Yes, it even bakes an angel food cake — just the right size for one meal. And is it delicious!

RANGES AND HEATERS

Monarch - Paramount

COAL - WOOD, ELECTRIC, GAS and COMBINATION RANGES

CRESCENT
VARNISHED CAMBRIC
POWER CABLE
Heavier loads for longer periods of time than formerly possible are obtainable with CRESCENT VARNISHED CAMBRIC CABLE. This general-purpose, industrial power cable provides higher current carrying capacity for the same size of copper conductors, together with maximum safety and permanence.
CRESCENT
WIRE & CABLE
CRESCENT INSULATED WIRE & CABLE CO.
TRENTON, N. J.
NEMA

company's district manager at Pittsburgh.

In his new post Mr. Mullally will supervise and coordinate sales of all the company's products to power and light systems, publicly and privately owned and to the railroad and communication industries.

* * *

Curt H. Carmichael, of Dallas, Texas, has been named Southwestern District manager for the Home Appliance Department of General Mills, Inc., it is announced by **Roscoe E. Imhoff,** department manager. Mr. Carmichael is currently opening his district headquarters at 410 Continental Building, Dallas. His territory includes Texas, Oklahoma, Louisiana, and Mississippi.

Distribution of General Mills' new home appliances in these states will begin late in 1946. The initial distribution will include the Tru-Heat automatic iron featuring Tru-Heat control and a safety side rest, followed by the Pressure Quick saucepan with cookminder control and magic metal cover. Other appliances will be introduced later. Betty Crocker of the General Mills Home Service Department will sponsor the new home appliances.

* * *

Effective September 1st, **C. B. McCartney** resigned his position as electrical superintendent of the Florida Power Corporation and has become a consulting engineer with headquarters in St. Petersburg.

C. B. McCartney

Mr. McCartney, who is a member of the A.I.E.E. and the Florida Engineering Society, and who is registered in Florida, was with Florida Power for more than twenty years. Specializing in general transmission and distribution problems, he will operate mainly in the Southeastern states.

M. H. Roberts has been appointed Southwestern district representative for the General Electric Company's automatic blanket section, with headquarters in Dallas, Tex., it has been announced by **R. V. MacDonald**, appliance district manager.

Mr. Roberts, who has been connected with the blanket section in Bridgeport, Conn., joined the company's wiring device section in 1944 and transferred soon to the traffic appliance divisions.

* * *

Hutson Colcock has resumed his duties as field representative for Curtis Lighting, Inc., in the New Orleans territory after 5 years service in the Navy. Mr. Colcock was commissioned a Lieut. (jg) in July 1941, and released from active duty August 20, 1946, as a full Commander. During this time, in addition to other assignments, he served as inspector of naval materials for R. C. A. where radios, radar and sonar equipment were manufactured for the Navy.

New Electrical Books

Best's Safety Directory

By the Safety Engineering Division of the Alfred M. Best Company, Inc. Published by Alfred M. Best Company, Inc., Best Building, 75 Fluton St., New York, N. Y. 351 pages, illustrated. Price $5.00.

SAFETY products of every known type are described in this book, the first of its kind. This "encylopedia" covers over 1000 products, devices and equipment used in safety, first-aid, hygiene, health conservation and fire protection. It is cross-indexed and contains a comprehensive, topical index which makes its use easy.

The Directory tells in a nutshell what safety product to use, when and how to use it, and where to get it. The names and addresses of manufacturers, distributors and local dealers are given.

Electric Motor Repair

By Robert Rosenberg. Published by Murray Hill Books, Inc., 232 Madison Ave., New York 16, N. Y. 570 pages, illustrated. Price $5.00.

INSTRUCTORS, students, repairmen, and beginners will find this book one of the most completely detailed and instructive books of its kind. Both a-c and d-c motors are covered, from the large motors used in industry down to the fractional horsepow-

DEPEND ON—INSIST ON—

P.R. MALLORY & CO., Inc.

MALLORY

Capacitors

Mallory Type "P" Capacitor:—Plastic case overcomes moisture absorption problems, and provides maximum insulation. May be used to replace cardboard insulated aluminum-case capacitors. Splash-proof plastic end cap and simplified "snap on" mounting bracket available when capacitor is used as original equipment.

Distributed by

INSULATION AND WIRES INCORPORATED
SAINT LOUIS 3, MISSOURI

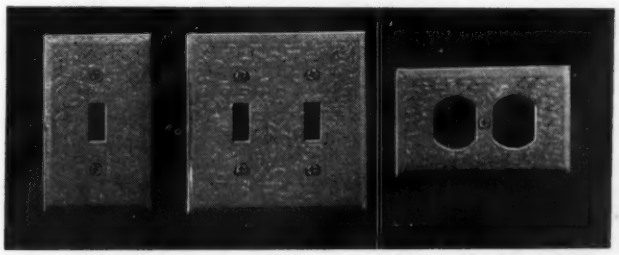
BOSTON 20, MASS. · DETROIT 2, MICH. · ATLANTA 3, GA.
HOUSTON 2, TEX. · BLUEFIELD, W. VA. · NEW YORK 7, N. Y.

SITTLER COMPANY
CHICAGO 7, ILL.

H. A. HOLDEN, INC.
MINNEAPOLIS 3, MINN.

TRI-STATE SUPPLY CORPORATION
LOS ANGELES 13, CAL. • SAN FRANCISCO 7, CAL. • SEATTLE 4, WASH.

ALUMINEX



SWITCH AND RECEPTACLE PLATES

Made of pure aluminum with lacquered satin finish suitable for every type of commercial use. Other plates are obtainable in beautiful baked wrinkled enamel in brown and ivory colors.

Order ALUMINEX plates in the following numbers:

AS-1 "Aluminex" Single Gang Switch Plate
AS-2 "Aluminex" Two Gang Switch Plate
AS-3 "Aluminex" Three Gang Switch Plate
AR-1 "Aluminex" Duplex Receptacle Plates

Write for catalog page showing complete line today.

Sold only through Electrical Wholesalers.

Sales Office: 80 West Peachtree Place N. W., Atlanta, Ga.
Plants: Savannah and Marietta, Ga.

D&M MANUFACTURING COMPANY INC.

er motors found in the home.

Theory is held to the bare minimum and space is devoted to actual data on troubleshooting, diagnosing and repair. Complete instruction on rewinding is given.

A unique and helpful feature of this book is the Duo-Spiral binding which enables the reader to place the book flat on the bench for ease of reading. The book actually folds out into two sections; the diagrams and illustrations on the left and the text on the right. This enables the reader to compare quickly the text and the explanatory illustration.

Scientific Instruments

By Herbert J. Cooper. Published by Chemical Publishing Co., Inc., 26 Court St., Brooklyn 2, N. Y. 304 pages, illustrated. Price $6.00.

THIS BOOK which discusses a wide range of such instruments as those used in the laboratory, in industry, in the field, and in commerce, will be of great interest not only to those workers in the specialized fields, but also to non-professional readers. It describes the various instruments and devotes much space to a discussion of the principles on which they are based.

The book is divided into five general divisions covering optical, measuring, navigational and surveying, liquid testing, and miscellaneous testing instruments, and each chapter contains sections on various specific classes. Its many diagrams and photographs facilitate the understanding of the mechanism and use of the most up-to-date instruments.

Electrical Measuring Instruments

By Edwin S. Lincoln. Published by Essential Books, 270 Madison Ave., New York 16, N. Y. 284 pages, illustrated. Price $3.00.

OPERATING principles of all types of industrial electric measuring instruments, both portable and switchboard types, shunts, multipliers, current and potential transformers, etc., are covered in this book. Details of ammeters, voltmeters, wattmeters, ohmmeters, power factor meters. speed indicators, etc., are given with tables for quick reference in selection of instruments.

Indicating, integrating, and graphic instruments are included for use on both d.c. and a.c. circuits. Ranges, damping, scales, frequency, sensitivity, accuracy, etc., are other subjects covered. Also included are electrical instruments, instrument connections, power consumption of instruments, their use and care.

Details are given for making electrical surveys of an entire system from which proper operation of equipment and economies may be made.

Chronological History of Electrical Development

By National Electrical Manufacturers Association, 155 E. 44th St., New York, N. Y. 144 pages. Price $2.00.

THIS BOOK is a story, by date, of electricity and the vast assortment of devices and equipment created by the electrical manufacturing industry to utilize it; of a long line of great men of science, their initiative, theories, research, experiments and discoveries —and their contributions to the present age of electricity, electronics, and atomic energy.

Designed as a reference work for editors, writers, commentators, libraries, and schools, as well as for industry, the chronology begins with the discovery of electricity in 600 B. C. and parades in 106 pages an extensive collection of background material, facts and "firsts".

While the book touches on such modern electrical applications as television, fluorescent, and ultra-violet light, the giant turbo-generator and the electron microanalyzer for atomic research, its accent is on the early-day men of science and industry and the steps they took to make electrical living possible.

Basic Electrical Engineering

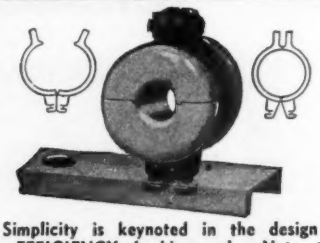
By A. E. Fitzgerald. Published by McGraw-Hill Book Co., Inc., 330 West 42nd St., New York 18, N. Y. 443 pages, illustrated. Price $3.75.

COVERING electrical engineering fundamentals under the broad divisions of circuits, machines, and electronics, rather than the more traditional direct currents and alternating currents, this book follows advanced trends in electrical-engineering study.

Alternating currents are introduced early in the book. The book is intended for students who have already had a course in college physics, and who have had some experience in using simple d-c theory. No knowledge of alternating currents is assumed.

"EFFICIENCY" DEVICES FOR CONDUIT AND CABLE SUSPENSION

EFFICIENCY NESTED CONDUCTOR RACKS



Nested Conductor Racks available for Cable diameters from 5/16" to 2-3/8".

● Simplicity is keynoted in the design of the EFFICIENCY bushing rack. Note that a single bolt supports the bushing and at the same time clamps the bushing support to the rack. Each fitting is a separate unit . . . permits the installation of each cable independently.

The EFFICIENCY rack is constructed of standard rolled steel channel — sizes according to size of bushings and number of mountings for each rack. Bushing supports are malleable iron. For A-C service a brass half is furnished. Bushings are glazed porcelain, extra large and heavy.

Complete information on all EFFICIENCY Electrical Devices is available. Write today for your copy of Catalog No. 38B.

Efficiency

MANUFACTURERS OF EFFICIENCY ELECTRICAL DEVICES FOR CONDUIT, WIRE AND CABLE SUSPENSION

ELECTRIC AND MANUFACTURING CO.

EAST PALESTINE, OHIO

Machinery is presented to the reader by a unified concept of the principles underlying all machines being given. Electronics is presented primarily from the industrial, instrumentation, and control viewpoint rather than from the communications viewpoint.

Various devices and circuit elements considered individually in the earlier chapters are discussed again in the last two chapters, with the author showing how they may be used in conjunction with each other to provide solutions to more complicated engineering problems, giving the reader a coordinated view of the field as a whole.

Appliance Displays That Really Work

(Continued from page 44)

every person coming along cannot resist the temptation to turn the tool. It's like feeling of wet paint. If a thousand persons pass by a grinder every day, then it will be turned at least 800 times. At least that's the theory.

"People are unconsciously turned against a locked power tool when they cannot turn it," Mr. Quakenbush said. "I've had many skilled craftsmen tell me since I started selling my power tools on a running basis that they are always irked by the tool that cannot be turned when they know that its bearings are free and that the store has locked it.

One of the most common motion displays in appliance stores is the washing machine. Mr. Quakenbush washes towels and clothing in real soapsuds and dries them in the drier. This has much more sales effect than a running washing machine sloshing soapy water.

One of the washing machines sold by the Miami Appliance Company is a type using rotary extractor type drier.

"How dry does it dry the clothes?" That is the question most often asked and the hardest to answer because customers take different views of identical sales talks.

Mr. Quakenbush runs a handful of bath towels through the washing machine, puts them in the extractor and they can feel for themselves. This eliminates all complaints which might have originated in the customer's mind.

Electric mangles and electric irons are demonstrated in the same way. Products of the extractor can be ironed by hand, mangle, or steam iron.

Motion displays are used wherever it is possible, but not all customers

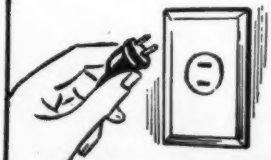
YOU DON'T HAVE TO KEEP YOUR FINGERS CROSSED...

When You Sell

Electresteem

THE ORIGINAL PORTABLE STEAM RADIATOR

STEAM HEAT from a WALL PLUG



Steam Heat WHEN and WHERE You WANT it!

Retail Price $37.35

Nationally Advertised

No Servicing Required

Trouble-Free Performance

You can sell Electresteem Portable Steam Radiators with confidence based on their long record of satisfactory service. Electresteem is the *original* Portable Steam Radiator, universally acclaimed by Dealers and users for dependable, trouble-free performance.

ELECTRIC STEAM RADIATOR CORP.
DETROIT 8, MICHIGAN
Electric Steam Radiator Company of Canada, Ltd.—Windsor, Ontario

want to see or try a machine. Those who have tried them and bought sell many customers who come in and say, "No, I don't want to see how it works. Mrs. Smith has told me all about it and I want one just like hers."

Jobber Campaigns for Better Retail Selling

(*Continued from page 40*)

he says, but he still has the bill, because salesmen he has encountered have never taken the trouble to inquire if he wanted anything else after he had made purchases with a $1 bill. It is his custom to exhibit the larger bill when he makes his talks as proof that he still is in possession of it. When he fares forth on a purchasing expedition it is his custom to carry the dollar bill in one pocket and the five in another.

Capitol Comment

(*Continued from page 58*)

can prevent a proportional rise in prices, nothing is gained. That situation is appreciated by the heads of unions but the political situation within labor unions is such that some subordinate may decide to head a movement for higher wages. He probably could get a following with resulting work stoppages. Since the need of the present situation is more production at lower cost, labor is in a better position than management to bring that about.

Accounting for Contractors

(*Continued from page 21*)

to a lot of individual accounts. That was cumbersome—took time and presented too many opportunities to make errors.

The method of "Accounting for Contractors" illustrated herewith provides special columns for special types of receipts. There is one column for Accounts Receivable—another column is available for Retail Sales, if you have them. Any special type of income may be easily kept separate by giving it a special column.

Some contractors head up one of the columns "Sales Tax" and keep all such receipts therein. Once the columns are set up for special income, nothing else should be kept in the column (see Figure 1).

In order to keep an accurate record, it is necessary to enter all receipts in the Cash Receipts Book and to deposit them in the bank. All disbursements should be made by check. A petty Cash Fund should be kept for small incidentals.

In the case of receipts where a discount has been allowed, the amount received is entered in Column 1, the discount is shown in the second column and the Gross amount (the check, plus discount) goes in Column 3, 4, 5 or 6. Columns 1 and 2 therefore *must* equal columns 3, 4, 5 and 6.

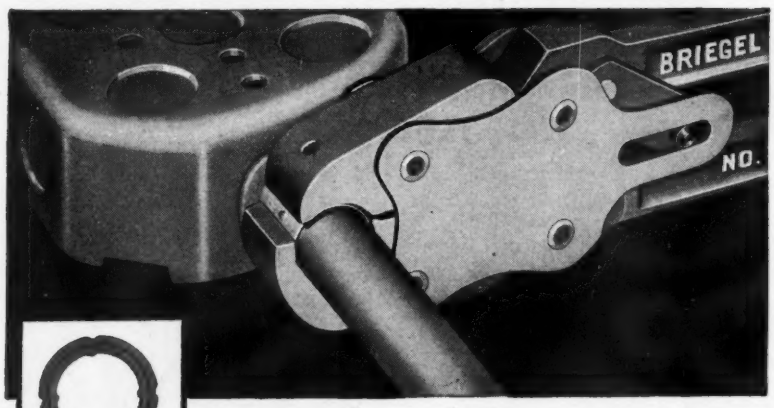
In the third column or Accounts Receivable (Accounts Receivable for our purposes is to be construed as all moneys collected for contracting activities) a space is provided for the Job Number, which should always be entered therein. If the amount received is not an "Accounts Receivable," it should not be entered in Column 3. If, for example, it is from the sale of over-the-counter stock items, Column 4 or 5 may be headed up "Store Sales" or "Retail Sales" and the amount entered therein—otherwise enter in Column 6 with explanation, as in the case of scrap sales (see Figure 1).

If cash is borrowed from the bank or some individual, the net amount received is always entered in the first column, the amount of the note is entered in the column headed "Other Receipts" and the explanation from whom it was received is placed in this column. The first column "Amounts Received" is your debits to your bank account. Each time a bank deposit is made, add the items in the first column. The amounts entered equal your deposit. (It may be entered as a "memo" in the column on the extreme right. Since this column is a "memo only" it has no bearing on balancing the page).

The sheet is kept in balance at all times by adding each column and putting the totals in small pencil figures and then making sure that the total of Columns 1 and 2 equals the total of Columns 3, 4, 5 and 6. When the bottom of the page is reached, make sure the page is in balance by the foregoing method and forward all totals to the proper columns on the next page.

This simple procedure may be followed month in and month out until the end of the year, at which time the footings show your total income for the year (the double entry bookkeeper may prefer to post these footings to the ledger monthly).

Figure 1 shows some typical entries. As you have already noticed, one of the features of "Accounting for Contractors" is that each job or pro-



Cross section Showing Indentations.

E·M·T·UP THE QUICK WAY
Two Squeezes and it's Set

TWO QUICK SQUEEZES give you Finer, Faster Conduit Connections. B-M Fittings do away with the twisting, turning and tightening of nuts and save you valuable time and materials. Then too, they are stronger, neater and much easier to work with in tight places. Start using B-M Fittings today. Have more satisfied customers—more profits from each job!

(All B-M Fittings carry the Underwriters Seal of Approval)

DISTRIBUTED BY

The M. B. Austin Co., Chicago, Ill.
Clayton Mark & Co., Evanston, Ill.
Clifton Conduit Co., Jersey Cy., N. J.
Gen. Electric Co., Bridgeport, Conn.
The Steelduct Co., Youngstown, Ohio
Enameled Metals, Pittsburgh, Penn.
National Enameling & Mfg. Co., Pittsburgh, Pa.
Triangle Conduit & Cable Co., New Brunswick, N. J.

Prompt Deliveries on Properly Rated Orders

BRIEGEL METHOD TOOL CO. • Galva, Ill.

ect is given a job number. All receipts from jobs (Accounts Receivable) are keyed with that number and should be entered to the credit side of the Job Record sheet keyed with this same number. (This is illustrated in the previous article dealing with "Job Records" which appeared in the Sept., 1946 issue.)

For example, referring again to Figure 1, we find that the first item is a sum of $500.00 received from E. L. Smith. This is entered in the first column "Amount Received". No discount was allowed the customer, so the same amount is entered in Column 3 under "Accounts Receivable". This money was from Job No. 9, so that is indicated in the column provided for that purpose. (After this entry is made, the $500 from Column 3 should be posted to the Credit side of the sheet on "Job Record Sheet No. 9").

You will notice that the second entry pertaining to Accounts Receivable is from M & L Realty Co., which pays a bill of $5,000 but is allowed a cash discount of $100. Therefore, the net amount received is entered in Column 1 ($4900), the $100 cash discount is entered in Column 2, and in Column 3 the full amount of the bill which is $5,000. This amount is from Job No. 8, as is shown in the "Job No." column and the $5,000 is, of course, to be posted to the credit side of the sheet on "Job Record" sheet No. 8.

The third entry is similar to the first one and is handled in the same manner. It pertains to No. 10.

The fourth entry indicates that $3.60 was received from H & H Salvage Company. The credit is entered in Column 6 and the explanation that the amount received was "from sale of scrap".

The fifth entry shown indicates that $7500 was borrowed from the bank.

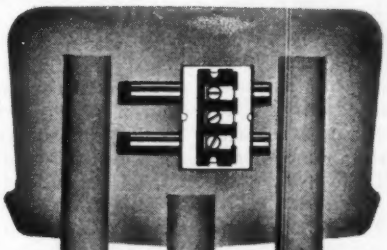
Over at the right hand side of the page in Column 6 the credit is entered which is $7500. In the Explanation" column it is shown that this was a loan on a 60-day note.

Had this been a case where a $7500 loan was negotiated and the discount taken off before the bank credited your account the net amount only would have been the amount shown in Column 1. $7500 would still be the amount entered in Column 6 and an entry for the interest, or discount, would in that case have been made in Column 6 by entering it in red ink or black ink with a circle around it to indicate it as a debt. (Such red ink or circled figure would be subtracted when adding the column.)

These typical entries illustrate prac-

"The Most Important development Ever Made In Chime Engineering..."

Say thousands of Rittenhouse dealers, distributors and chime users. The new Rittenhouse chime mechanism is creating an entirely new concept of chime tone and operating performance.



EXCLUSIVE, RITTENHOUSE

"Floating Percussion"

CHIME OPERATING MECHANISM

1. Completely eliminates all objectionable mechanical noises . . . entire operating unit floats on rubber.

2. New, trouble-free performance . . . felt-bearing plungers make jamming or sticking impossible.

3. Clear, rich tone . . . unhampered by plunger buzz, hum and rattle.

4. All parts self-contained, and protected from dust and dirt . . . no exposed springs or plungers to be lost or damaged.

As always look to

RITTENHOUSE

for the finest in chime engineering... styling... merchandising

THE RITTENHOUSE COMPANY, Inc.

10-86 EAST STREET HONEOYE FALLS, N. Y.

tically all types of entries pertaining to Cash Receipts. It should be borne in mind that Column No. 1 and No. 2 are the "Debt" columns and all other columns are "Credit" columns; that each time a debit or credit is made a corresponding credit or debit entry must be made to balance—therefore the totals of Column and 2 will always be equal to the totals of all the other columns. If your sheet is in balance your debits are equal to your credits.

The double entry bookkeeper or accountant may foot his books and enter the totals to his General Ledger each month. When the books are kept in simple form and no ledger maintained, the footings are balanced across and then carried forward to the top of each new page for the entire year. Thus at the end of the year, your totals will reflect the total Cash Receipts for the year. The totals in Column 3 will reflect the amount of money you have received from your contracting business, and if you maintain a store and have retail sales or other types of income, columns should be headed up to show you the total of such sales or income.

A separate article deals with purchases and cash paid out. In "Cash Paid Out" a column is provided to show all purchases for your store if you have one. You can find your profit from the store by considering your total sales as shown in Cash Receipts and the total purchases for your store items from your Cash Paid Out, considering also your beginning and ending inventory of such store items.

By all means keep an accurate record of all monies due you. Watch your collections. It's easier to collect money when due than to collect later. Insist on prompt payment of your Accounts Receivable.

Any recognized method of keeping an "Accounts Receivable" record is O.K. A simple and effective way is to keep a duplicate copy of all invoices rendered. File them alphabetically and refer to them often. Record all partial payments on your carbon copy and when it is "paid in full" remove it to a "Paid" file.

Yes, Cash Receipts are important. Receiving the cash is probably one of the most pleasant functions of conducting a business. Keep a good record of it.

Standardization of Motors Undertaken

(Continued from page 20)

breakdown torque related to full load torque, as compared with motors of larger rating, have a higher overload ability than indicated by 1.15 service factor of the larger ratings.

The service factors, recently adopted as standards by NEMA, and given in Table II have been determined to define the loading that will give a total temperature rise of 50° C. on a general purpose fractional hp motor having 40° C. rise at the nameplate rating.

The temperature rise on which the nameplate rating is based shall be no more than 40° C. for all coil windings. This low limiting temperature rise is provided to allow a greater factor of safety where the service conditions are unknown.

When authorized by the manufacturer such a motor may be operated (at rated voltage and frequency and in an ambient temperature not exceeding 40° C.) at a continuous load greater than rated load determined by the above service factors.

It is recommended that the service factor shall be marked on the nameplate in addition to the rating.

It will be noted that these service factors go up as far as 1.4 which means a 40° C. motor having a 1.4 service factor may be operated at 140% load continuously.

The maximum locked rotor current standard is not new, having been adopted by NEMA several years ago. The standard provides that the locked-rotor current of 60 cycle, single-phase motors, (900-3600 rpm range) of any type, except those split-phase motors at present used on washing machines and ironing machines, shall not exceed the values given in Table III.

The NEMA standards list code letters to designate the starting current in terms of "locked KVA per horsepower" are given in Table IV.

The recent standardization extends the stamping of the National Electrical code letter on the motor nameplate of fractional horsepower motors to 1/20 hp rating. This provides a marking from which can be determined the actual starting current and provides a check as to the motors conformance with the standard for locked rotor current. This is of value to suppliers of control equipment and power suppliers.

Selling Time Is Here Again

(Continued from page 18)

out waffles for three days because the owner did not believe they could be sold in hot weather.

Here is an exact record of the results. It was shown that 7.5 to 8.0 servings per pound of prepared waffle flour could be expected. These prices were those of the market at the time the test was run and do not coincide with today's prices. The flour could be purchased for 15c per pound in 110-pound lots and 18c per pound in 30-pound lots, and the 30-pound figure was used in obtaining the food cost. A total of 120 pounds was used during the sixty-day period and a total of 960 waffles were sold. The accompanying tabulation shows complete results of the test.

DEALERS! New Amazing

• NICHROCITE •

SAVES MANY ELECTRIC APPLIANCES MENDS HEATING ELEMENTS EASILY!

Simply overlap ends, apply Nichrocite paste and turn on the current—a perfect weld results. Used by big utility companies. This simple and effective repair material is just the thing for that broken or burned out heating element in your electric iron, stove, toaster or heater. Easy to use in those hard-to-get-at places. Does the job in a jiffy.

HANDY FOR HOME AND INDUSTRIAL USE
Trial Order, $1.00; 4 Ozs. $2.50; 1 lb. $8.00

Arrowhead Sales & Distributing Co.
408 Phoenix Bldg. • Minneapolis, Minn.

Handbooks of Adequate Wiring

Two valuable booklets available with Electrical South.

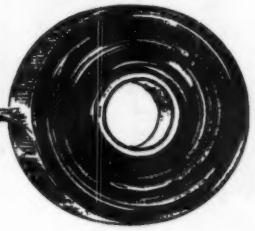
"Handbook of Residential Wiring Design" and "Handbook of Farmstead Wiring Design," summarizing the latest authoritative information on adequate wiring systems, may be obtained with a three-year subscription to Electrical South at the special price of $2.50 for a limited time. Send name, address, and remittance at once to make sure of getting your copies.

ELECTRICAL SOUTH

Grant Building **Atlanta 3, Ga.**

Super-stik

Packed 10 rolls to the can.



FRICTION TAPE

"Sticks to the End"

WHOLESALE DISTRIBUTORS

ALABAMA
SHEFFIELD
Martin Supply Company
ARKANSAS
FORT SMITH, Bruce Co., Inc.
DISTRICT OF COLUMBIA
WASHINGTON
National Electric Wholesalers
Wesco Electric Supply Co.
GEORGIA
ALBANY
Electric Equipment Company
ATLANTA
The Barlock Supply Company
KANSAS
KANSAS CITY
W. T. Foley Electrical Co.

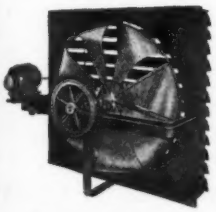
LOUISIANA
BATON ROUGE
Evans Electrical Supply, Inc.
LAFAYETTE, Butcher Brothers
LAKE CHARLES
Lake Charles Electrical Supply Company
LAKE PROVIDENCE
F. H. Schneider & Sons, Inc.
MONROE
Weaks Supply Company, Ltd.
NEW ORLEANS
Standard Supply & Hardware Company
MARYLAND
BALTIMORE
Atlantic Electrical Supply Co.
Atlantic Specialty Company

MISSOURI
JOPLIN
Russell Belden Electric Co.
KANSAS CITY
Glasco Electric Co.
ST. LOUIS
Glasco Electric Co.
Shapleigh Hardware Co.
United Electric Supply Co.
SPRINGFIELD
Harry Cooper Supply Co.
NORTH CAROLINA
GOLDSBORO
Hare Electric Supply Co.
TENNESSEE
CHATTANOOGA
Ramsey Electric Supply Co.

TEXAS
ABILENE, Sun Electric Co.
AMARILLO
Marsh Electrical Supply
AUSTIN, The Walter Tips Co.
CORPUS CHRISTI
Sterett Supply Co.
DALLAS
The Beckett Electric Co., Inc.
Summers Electric Co.
EL PASO
Electrical & Mechanical Sup. Co.
FORT WORTH
Cummins Supply Co.
Fort Worth Radio Supply Co.
HARLINGEN, Bush Supply Co.
HOUSTON
Sterling Radio Products Co.
LONGVIEW
Messner Electric Supply Co.
LUBBOCK
Southwestern Electric Sup. Co.
TEXARKANA
Aycock Distributing Co.
TYLER
The Guidon Supply Co.
WACO
Dealers Electrical Supply
WICHITA FALLS, Biggs & Co.
VIRGINIA
LYNCHBURG
Mid-State Electrical Sup. Co., Inc.
NORFOLK
Goodman Electric Supply Co.
WEST VIRGINIA
CHARLESTON
Virginian Electric, Inc.

SUPERIOR INSULATING TAPE CO. · ST. LOUIS, MO., U. S. A.
Established 1923

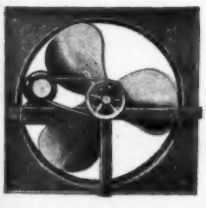
Here's How to Lick that Hard Ventilating Job!



Sizes 18" to 32"

MARTIN
Bucket
EXHAUST FANS

for industrial plants and various installations where abnormal ventilating requirements exist such as . . . •Stagnant Air •Excessive Heat •High Humidity •Chemical Fumes •Severe Smoke.



MARTIN
Utility
EXHAUST FANS

A sturdy fan to fill a variety of needs. For homes . . . for commercial and light industrial uses.

Sizes 24 to 72" *Write for information.*

MARTIN Fan & Blower Co.
4632 West 21st Place Chicago 50, Illinois
Lawndale 8474-5-6. Long Distance Olympic 5252

ELECTRIC SOLDERING IRONS

BY *Lenk*

- SAFE
- SURE
- DEPENDABLE

THE *Lenk* MFG. COMPANY

POST OFFICE BOX 8, NEWTON LOWER FALLS 62, MASS.
Manufacturers of Soldering Equipment Since 1919

✻ SEALED
✻ SHOCK-PROOF
SAFE

No. 3007

THE NEW
McGILL
Vaporproof

Portable Lamp Guard . . . strong, portable, sealed. It is water-tight, vapor-tight, dust-tight and moisture proof. The plastic handle, and fibre cage are shock proof and non-sparking. **A rubber gasket has now been placed between the cage and handle, and absorbs all stress and strain, preventing breakage.** The heavy glass protecting globe eliminates possibility of breakage of the lamp bulb inside from splashing liquids. Being air-tight these guards are perfectly safe for use where vapor and dust infused air is prevalent. They have no equal for safety, service and convenience around flour mills, paint booths, finishing rooms, airports, warehouses, food processing plants, shipyards, aboard ships, and many other places.

The No. 3007 has the plastic cage. The No. 3006 has a heavily tinned, electrically welded wire cage.

ELECTRICAL DIVISION

McGILL
MANUFACTURING CO., INC.
VALPARAISO, INDIANA

Thus it was shown that an average of 30 waffles a day will actually net the food service proprietor $1000 per year or even more if prepared flour is used. Also the food cost is well below 40 per cent of the gross revenue which is considered a good figure.

Customers reaction checks were made. No complaints were received on inferior quality due to use of prepared flour and customers praised the flavor, crispness and body of the waffles produced.

The new prospect for an electric appliance is usually skeptical of the low amount of current consumed and often takes the salesman's tabulated tables with a large helping of salt.

The customer could not help being impressed by the low amount of current consumed in this test. The waffle baker had a connected load of 1320 watts but used a surprisingly low amount of electricity. Total hours in use was 960 hours or 0.213 KWHrs. per hour. This economy was credited to the thermostat. The full load was on approximately 45 seconds out of every five-to-eight minutes while idling. The baking time for each single order of waffles was 3.5 minutes. The full load of the waffle baker was never on long enough to affect the customer's demand in the test due to diversity of other loads. The use of the iron caused it to fall in the one-cent excess bracket of this particular rate structure which was an exceptionally favorable condition and one that might not always be found. It was safe to say, company engineers said, that this iron could be operated for a cost of .2 to .6 cents per waffle.

The domestic iron stood the gaff and there were no signs of mechanical wear or failure. It was easy to keep the grids clean and prevent sticking which prevented waste. The iron functioned as well at the end of the test as at the beginning.

The owner reported the objection that a customer had to wait too long for a waffle because the domestic iron could not be used for a double order.

In a summary of all the objections raised, Mr. Macomb said it was indicated that all could be eliminated with installation of a commercial waffle iron and that this installation would increase the potential production capacity and lead to increased sale and more profit.

The point of the whole thing is that any dealer can easily run similar tests on all types of equipment that he sells from washing machines to popcorn poppers. Armed with these personally owned facts he is possessed of many advantages because, generally,

Star Performance!

There is but one true measure of the value of a water heater and that is, performance—plenty of hot water, long trouble-free service.

Two exclusive Clark features—Ionodic Tank Protection and Life-Belt Heating Element, enable the Clark Electric Water Heater to give performance unequalled by any other heater on the market.

Judged by performance or any other standard, the Clark today, even more than ever, is the greatest water heater value on the market.

McGRAW
ELECTRIC
COMPANY
CLARK WATER
HEATER DIV.
5201 W. 65th St.
CHICAGO 38, ILL.

CLARK
ELECTRIC WATER HEATERS
A Toastmaster Product

PARTS
FOR
MOTORS
FANS
CONTROLS

PROMPT SHIPMENT FROM LARGE STOCKS

AUTHORIZED PARTS DISTRIBUTORS

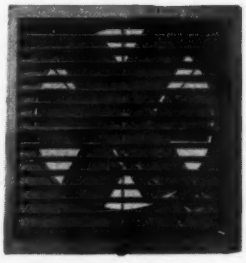
Brown-Brockmeyer	General Electric	Master
Century	Hamilton-Beach	Peerless
Cutler-Hammer	Holtzer-Cabot	Robbins & Myers
Delco	Howell	Star
Diehl	Hunter	Thor
Duro	Ilg	Wagner
Emerson	Leland	Westinghouse
	Marathon	

READING ELECTRIC COMPANY, INC.

Parts Distributors for the Manufacturer

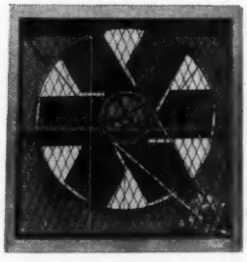
200 William St. *Barclay 7-6616* New York 8, N. Y.

Reed



RUF with Divert-O-Vent

WIND-O-VENTS
Reversible
Quiet
Portable
Dependable



RUF with
Rear Wire Guard

CERTIFIED RATINGS

TEST STATEMENT — Each Reed Unit Fan bears a certified rating label of the Propeller Fan Manufacturers Association. This label certifies that the fan has been tested in strict accordance with the Standard Test Code as approved by the American Society of Heating and Ventilating Engineers.

REED UNIT-FANS, INC.

Manufacturers of Ventilating Equipment

1001 St. Charles Ave., New Orleans 8, La.

"WILL YOU BE READY FOR ME— and thousands more who soon will want a TRILMONT *Heater?"*

CHILLY DAYS ARE HERE—days when home-owners and apartment dwellers first feel the need for an auxiliary room heater . . . To get more than your share of this business be ready with the TRILMONT Safety Electric Heater—America's best-known and fastest selling heater in its price class—a price that assures you more profit per unit than your gross receipts from conventional heaters! The time to order is NOW . . . so don't delay.

The Trilmont is furnished in two colors —ivory or brown, and two sizes—

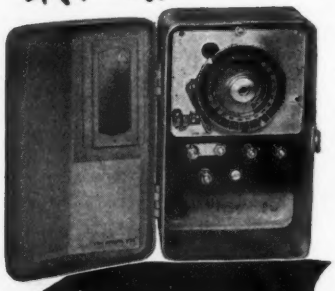
Model A—1200 Watts—10 Amps @ 120 Volts
Model AA—1320 Watts—12 Amps @ 110 Volts

Write us today for name of nearest Distributor

Advertised in, and Warranted by "GOOD HOUSEKEEPING"

OPA APPROVED PRICE
$33.00 Including Excise Tax and Detachable Cord Set. 95c Extra in Zone #2

TRILMONT PRODUCTS CO.
24th & WALNUT STS • PHILADELPHIA 3



New PS-30
POULTRY
TIME SWITCH
by Paragon

NEW LOW PRICE
$12.75 LIST . . .
Telechron Motored

A low price switch with evening dimming feature. Authorities have proven that both morning and evening lighting greatly increases egg production per pound of feed.

Cash In Now!

Large quantities of the new PS-30 and basic materials for additional quantities are now in Paragon stocks. Recent enlargements in plant . . . modernized manufacturing methods . . . availability of raw materials . . . make savings in manufacturing costs reflected in the new low price. Order your poultry switches now.

Paragon designs and manufactures time controls for every need.

PARAGON ELECTRIC COMPANY
1618 Twelfth Street • Two Rivers, Wis.

SALES REPRESENTATIVES
HOPPER & McCOY
306 Marietta Street, N.W. . Atlanta 3, Georgia
GEORGE E. ANDERSON COMPANY
Santa Fe Bldg. . Dallas 2, Texas . Phone R-4013

Paragon Two Rivers WISCONSIN
BUILDERS OF ELECTRICAL EQUIPMENT SINCE 1906

to know the facts is to sell the customer.

A result of the test, Mr. Macomb said, was to indicate that the domestic waffle iron had a definite place in a commercial establishment selling fifteen or less waffles per day.

Mr. Macomb's "Cook's Tour" sold coffee makers, ranges, soup heaters, griddles, grills, hot plates, etc.

It definitely taught that prospects should not be judged by outside appearances—the roadside palace or the bill-plastered hot dog stand—both are prospects.

Atlanta Gets 110 Kv Cable

(Continued from page 16)

ing machine which cut a maximum depth of 6'-6" and due to having to place the pipe at great depths at street crossings to pass under the obstructions.

A ditching machine was used for the entire length of the line except for street crossings. Due to the heavy traffic on cross streets, it was found more economical to tunnel most street crossings. It was found by locating the water, gas and sewer services previous to excavating with the ditching machine, relatively few services were damaged. These utility services were located from records by locating meters or cutoff valves at curb, by use of an M scope, by probing, or by use of all methods.

The pipe was cleaned thoroughly inside before being placed above the trench. A swab was used and the pipe cleaned similarly to the cleaning of a gun barrel. The Somastic coating was tested for breaks in same with a Holiday detector. Any defects in the Somastic coating were repaired by heating the area and molding Somastic with putty knife, adding more Somastic if necessary. The pipe was placed above the trench on 4"x6" timbers covered with burlap bags filled with straw. The bags of straw distributed the weight of the pipe and prevented the Somastic coating being damaged. Five to seven lengths of pipe were welded above ground, and the assembled section was pulled into the trench under the utility services.

The pipe was electrically welded, the welds being made with three passes. Practically all welds were position welds, on which the first two passes were made with an 1/8" rod and the third pass with a 5/32" rod. It was found very difficult to obtain a welder that could qualify to position weld pipe. Only two welders that could qualify were located during the installation of the line and they were obtained from pipe line construction companies.

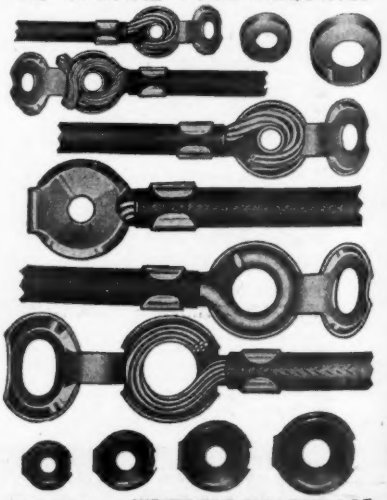
All welds made during the course of one day were tested towards the end of the day. Welds were tested by jarring the pipe with a 2-lb. hammer for a minimum of 5 seconds with the pipe under 100 psi air pressure. With the line under pressure, the welds were checked by placing a collapsible water box around the weld. If any leaks were present, they would show up as air bubbles. The air used for testing after passing through the dryer will have a dew point under zero degree F. This dry air is passed through the pipe for an hour or more previous to testing the welds and then is left in the pipe overnight. Prior to starting work the following day, the dry air is released.

Bends can be preformed above the ground before or after the pipe is welded into sections and then dropped into the trench. Bends of 40 foot radius have been made before and after welding into sections. In making the bends, no damage was done to the Somastic coating. Bends of long radius, 200 ft. or greater, can be made by pulling the pipe into the trench and making the trench form the pipe.

After the welds are tested, a pipe

FOLDING **DOUBLE** CUPPED
★ WASHER LUGS ★
A SIZE and TYPE *for every need!*

NO SPECIAL TOOL REQUIRED



WRITE FOR BULLETIN 8-DF
K&H KRUEGER & HUDEPOHL
Solderless Terminal Lugs and Connectors
VINE AT THIRD-ES • CINCINNATI 2, OHIO

List Price
$1.00 each
No. 46

MURDOCK BUZZERS and PUSH BUTTONS SELL FAST!

Quality Products Priced Right for Easy Sales!

Electrical dealers everywhere report fast sales on these specialties. These sure-fire money-makers are made by the Wm. J. Murdock Co., for 50 years a leader in communications equipment. MURDOCK'S Tone-Right Buzzer attracts favorable attention because of its modern louver-design. Buzzer produces a pleasing, uniform tone and is guaranteed for years of trouble-free service. Choice of colors in attractive moulded cases. Operates on 6 to 8 volts, A.C. only. 3½" x 1⅝" x 1¼" deep. This no-contact buzzer is fully insulated.

These Two Push Buttons Ring Your Profit Bell . . .

List
$.30 each
No. 10

List
$.40 each
No. 11

Display Them On Your Counter for Self-Service Sales!

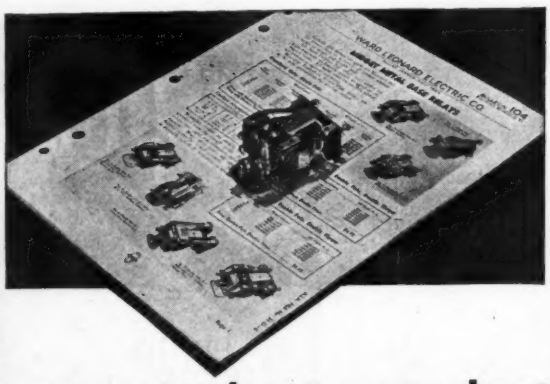
MURDOCK Push Buttons are time-tested products. Smart, compact appearance . . . smooth working, positive contacts . . . all metal parts rustproof and insulated. Available in attractive moulded cases.

No. 10 — 1⅝" x 1⅛" x ⅞" high. Name plate model No. 11 has removable metal escutcheon, 3¼" x 1⅛" x ⅞" high.

Represented in the Southwest by GEO. E. ANDERSON COMPANY, 1901 Griffin St., Dallas 2, Texas.
Represented in the Southeast by L. MORRIS LANDERS CO., 315 Walton Bldg., Atlanta 3, Georgia.

WHOLESALERS: Write Today for Trade Discount

WM. J. MURDOCK CO. 236 Carter St. Chelsea 50, Mass.



you want to know more about BULLETIN 104 RELAYS

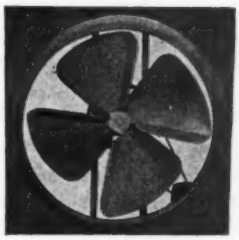
This group, Bulletin 104 Relays, includes standard and heavy-duty types, in a wide variety of contact arrangements, of single and double pole for front or rear mounting. They are positive in action, they are compact, they are sturdy. When designing any equipment that requires a relay function, see what Ward Leonard has to offer you. Ward Leonard Relays include types and sizes for every application. They all have crisp action, are dependable and durable yet consume but little current.

Bulletins are available describing Ward Leonard Relays, Resistors, Rheostats and Motor Controls. Send for the bulletins of interest to you.

WARD LEONARD
RELAYS • RESISTORS • RHEOSTATS
Electric control devices since 1892

WARD LEONARD ELECTRIC COMPANY
37 SOUTH STREET, MOUNT VERNON, N. Y. • *Offices in principal cities*

THE "Fresh-Air MAKER"



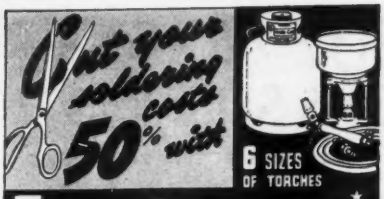
provides fully the comfort and ventilation so essential in army barracks, mess halls, hospitals, headquarters, theaters and other military buildings. Its fine design and sound construction meet the specifications drawn for army fans and it is particularly adaptable to the various types of installations found in army buildings.

HY-DUTY BLOWERS

Single Inlet—Double Inlet. 400 CFM to 12,500 CFM.

Single Inlet Blower illustrated at left is particularly adapted for ventilation of mess halls in military establishments.

VENTILATING DIVISION
SCHWITZER-CUMMINS COMPANY
1125 MASSACHUSETTS AVE. • INDIANAPOLIS 7, U. S. A.



Insto-gas
TORCHES & FURNACES

The Universal Portable Heat

ALL TYPES OF WORK

Instant-lighting Torches for lead welding, all types of soldering, paint removing, thawing, pre-heating, etc.

NON-OXIDIZING

Insto-Gas produces an absolutely clean non-oxidizing flame, leaves no smoke, soot, or grease deposits to cause a faulty soldered joint.

ECONOMICAL

A cylinder of Insto-Gas lasts at least five times as long as a cylinder of compressed gas of approximately the same weight . . . Economy!

QUICK!

Insto-Gas produces its own pressure, lights instantly, won't blow out.

NO SOOT OR GREASE

Insto-Gas non-oxidizing flame makes perfect copper pipe soldered joints and leaves no soot or grease to be cleaned from the fitting.

SAFE PORTABLE HEAT

Insto-Gas AND equipment are recognized as the safest portable heat, listed by both Underwriters and Factory Mutuals Laboratories.

Insto-Gas

IF WHOLESALER CANNOT SUPPLY INSTO-GAS, MAIL COUPON
INSTO-GAS CORPORATION—DETROIT 7, MICH.
Please send Insto-Gas Bulletin and name of nearest Distributor.
Name.....
Address.....
E. S. .....
INSTO-GAS CORPORATION • 1977 E. Woodbridge • Detroit 7, Mich.

joint mold is placed around the pipe weld and filled with Somastic. The Somastic is furnished in form of chips which need only be heated, preventing having to weigh and mix ingredients making up the compound in the field. The Somastic is heated in a special kettle having a double wall. Prolonged heating will burn the asphalt out of the Somastic compound requiring extra asphalt to be added. Whitewash is used to prevent the Somastic compound adhering to the surface of the mold.

A No. 6 galvanized steel wire is installed in the pipe as it is installed in the ground in order to have a line to pull the 1" wire rope for pulling the cable into the pipe. Pipe lengths of 1224 ft. to 1526 ft. are too long for conventional duct rods.

After the pipe is installed, welds tested, and pipe joints covered with Somastic, four inches of dirt free from rocks is placed on top of the pipe. This earth is tamped lightly by having laborers walk over the backfill. A three inch thick pad of 1:3:6 dry mix concrete is poured over the backfill the full width of the trench (approx. 24"). The trench is then backfilled to street level, tamping the backfill by layers.

The pipe is installed straight through the manholes to secure proper alignment through the manholes. After the pipe is extended fifty feet or more beyond a manhole, The completed section between two manholes is then capped, evacuated, checking for moisture during evacuation by using the G. E. trap immersed in dry ice and gasoline, and then filled with dry dioxide gas under 5 lb. positive pressure.

As the installation of the pipe proceeds, the installation of reducers (section reducing the joint to the diameter of the pipe) is started. The two reducers with tie rods in place is set up in the manhole and the two sections of pipe accurately aligned. The reducers are welded to the pipe (butt weld) using either acetylene or electric welding. The pipe is cleaned thoroughly inside at the weld removing all icicles and rough spots. The weld is tested at 100 lbs. psi air pressure. A plate is placed over the reducer, the section of pipe is evacuated and filled with dry carbon dioxide gas. The section of pipe is then ready for the cable to be installed.

The day preceding the day on which the cable is to be pulled into the pipe, the pulling tube and the special steel pulley are placed in the manhole and the 1" wire pulling rope is pulled into the pipe. The pipe is sealed on both ends with rags and duct seal and carbon dioxide is allowed to trickle into the pipe all night. The three cable reels are also placed the day preceding the cable pull. All three cables are pulled into the pipe at the same time, carbon dioxide gas being allowed to trickle into the pipe during the period the cable is being pulled. A piano wire under the lead sheath is used to cut the lead sheath by a man on each length stationed adjacent to the reels. The lead sheath is then pulled away from the cable and cut off in three four-foot sections by men adjacent to the pulling tube. The pulling stresses ran from 3500 lbs. to 5500 lbs., the maximum pulling stresses being obtained where there were 40 ft. radius, 90 degree bends in the section.

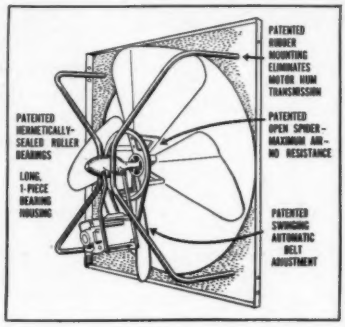
After the cable is pulled into the pipe the micarta stop plate is placed on the reducer, the cable ends prepared by removing the D armor from the cable and covering the cable with V. C. tape, and the night caps are placed on the end of the reducer, sealing the cable from the atmosphere. The pipe and night caps are evacuated, tested for moisture, and filled with oil under 10-15 lbs. positive pressure. The oil used to fill the pipe was Suniso No. 6 having a viscosity of 3000 secs. at 20 deg. C and 260

Try to Match this

PERFORMANCE, CONSTRUCTION, *Sales Appeal*

"A Breeze" to Sell

Imagine an attic fan with these features; no oiling, no belt adjustment or alignment, no motor hum transmission, long life. Well, it's here and it's your chance to cash in on an item that is a breeze to sell. The fan with patent features.


PATENTED RUBBER MOUNTING ELIMINATES MOTOR HUM TRANSMISSION
PATENTED OPEN SPIDER-MAXIMUM AIR-NO RESISTANCE
PATENTED HERMETICALLY-SEALED ROLLER BEARINGS
LONG, 1-PIECE BEARING HOUSING
PATENTED SWINGING AUTOMATIC BELT ADJUSTMENT

Immediate delivery on complete 42" fan chassis less motors. Limited supply of fans with motors. Any 1/4 or 1/3 h.p. motor can be easily installed. Write today for folder giving full particulars on this revolutionary fan.

All patents applied for

STONEWALL COMPANY

Southern Sales Office: 813 Bona Allen Bldg. Atlanta, Ga.

FACTORY: 138 WEST 54th ST., CHICAGO, ILL.

FAN BLADES

Model 421 CO 22" Blade

Model 421 CO, 2 blades, operates on 1/6 H.P. motor or larger at 1,725 R.P.M. Made in either 1/2" or 5/8" bore. Packed 12 to carton.

Made by a manufacturer with years of ventilating experience, with thousands in satisfactory use throughout the country.

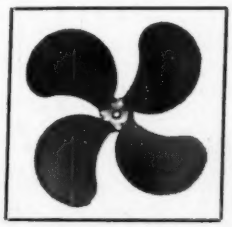
These blades are designed and engineered to produce a maximum flow of air, are uniform in size and shape for equal distribution of load, dynamically BALANCED with every desirable feature of STRENGTH, TRUENESS, QUIETNESS and BEAUTY incorporated into them.

Prices quoted on request.

Model 420 CO (shown at right)—4 blades, operates on ⅛ h.p. motor or larger at 1140 r.p.m. Also operates on 1/3 h.p. or larger at 1725 r.p.m.

Model 424 CO (shown at right)—4 blades, operates on 1/6 h.p. motor or larger at 1140 r.p.m. Also operates on ⅛ h.p. motor or larger at 1725 r.p.m.

Made in either ½" or ⅝" bore. Packed 6 to the carton.



Model 420 CO 20"
Model 424 CO 24"

Products of C & H Air Conditioning Fan Co., Inc.
Distributed by

Texas & Okla. Sales Office:
508 Insurance Building
Dallas 1, Texas

APPLIANCE DISTRIBUTING CO.
163 WALTON ST., N. W.
ATLANTA 3, GA.

The New Home of Lloyd PRODUCTS

Lloyd appreciates the patience and forbearance you have shown when overloaded manufacturing facilities slowed down delivery of Lloyd Flex-Loc Lamp Holders and Lloyd Automatic Starters. We are now at home in this large modern plant, where greatly increased facilities will make possible greater service to all our customers . . . service which we hope will match in quality the matchless Flex-Loc Lamp Holders and Lloyd Automatic Starters.

LLOYD POLICY INSURES QUALITY

651-F
FLEX-LOC Lamp Holder

Automatically self-adjusting. Engineered to fit ALL STANDARD spacings. POSITIVE AUTOMATIC LOCK. PERFECT ELECTRICAL CONTACT. Brass contacts grip BOTH sides of lamp pins securely.

Listed and Approved by Underwriters' Lab., Inc., and Canadian Standards Assoc., App. Division, E.T.I. Test Report 314454 Available. Patented—Other patents pending.

FS-40
AUTOMATIC Starter

CUTS OUT deactivated or flickering lamps. CUTS OUT current to lamp and ballast. Increases life of lamp and ballast.

Listed and Approved by Underwriters' La., Inc. Certified by E.T.L., Spec. 6. Pat. Nos. 2200443-2228210.

LLOYD PRODUCTS COMPANY

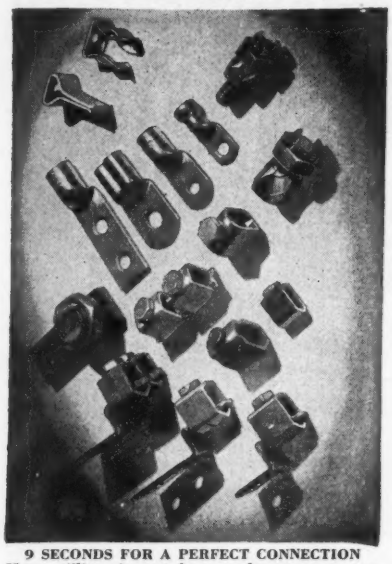
Providence 5 Rhode Island

GEORGE E. ANDERSON CO.
Sante Fe Bldg.,
Dallas 2, Texas

S. L. BAGBY COMPANY
822 W. Moorhead St.,
Charlotte, N. C.

WILLIAM H. BERRY, JR.
88 Pryor St., S. W., Atlanta 3, Ga.

ILSCO ELECTRICAL CONNECTORS



9 SECONDS FOR A PERFECT CONNECTION
Many millions in actual use . . . because no guesswork . . . no worries . . . no special tools.
Economical . . . dependable.
Southeastern Representatives
VERYLN H. BRANHAM
180 Interlochen Drive, Atlanta, Ga.
J. P. LUMPKIN
248 Tranquil Ave., Charlotte, N. C.

ILSCO COPPER TUBE & PRODUCTS, Inc.
CINCINNATI, OHIO

HELWIG SPEER
Carbon Products

BRUSH KITS
of all descriptions
CARBON BRUSHES
of all descriptions
HELWIG COMPANY
2544 N. 30TH ST. MILWAUKEE 10, WIS.
Southern Offices
Room 316 Walton Bldg., Atlanta, Georgia
Telephone: JAckson 6097
323 Northwest Second St. Oklahoma City 2, Oklahoma
Telephone: 2-6881
3000 Block McKinney, Houston 3, Texas
Telephone: Preston 1610
1915 Washington Ave., St. Louis, Mo.
Telephone: Chestnut 6510

secs. at 60 deg. C. The vacuum pump was placed at the high elevation manhole of the section and the oil tank and pump at the low elevation manhole of the section. Vacuum was drawn on the pipe the entire time the oil was being pumped into the pipe. The oil was shipped degasified and was handled under a closed system from the tank car to the pipe. The oil was always pumped into a tank or pipe which had been evacuated and the tanks always had an atmosphere of nitrogen above the oil.

From 24 to 27 hours were required to complete the insulating and oil filling of a joint. This was done over a three day period. At the end of each day the two halves of the joint sleeve were placed over the cables, the bolts tightened, and the joint flushed out and left filled with dry carbon dioxide gas. After completion of the joint, the joint sleeve was evacuated and filled with oil. There are 19 joints in the system, two of which are terminating joints.

Each pothead was installed in an 8-hour day. Upon completion of all three potheads at each substation, the three potheads, riser pipes, and terminating joint were evacuated and filled as a unit. The evacuation was carried on over night, evacuating usually for 14 hours or more in order to remove all carbon dioxide gas from the insulation.

The permanent by-passes around each joint were the last part of the installation installed. Each of these by-passes contains a JJ valve. This JJ valve is an automatic sectionalizing valve arranged to close if the pressure on the line drops to some predetermined value. This prevents losing all the oil in the line if a large break should occur in the line. Due to the large difference in elevation between either substation and the high point on the line (approx. 160 feet), some valves were set at 45 lbs, and some at 75 lbs.

In parallel with the bypass are two safety heads and a reservoir. The diaphragm in the safety heads are set to rupture at 500 lbs. If a short circuit occurs in the cable, which is extremely unlikely, it would be only necessary to check the reservoirs by removing a plug from the bottom of each reservoir. Normally, the reservoirs would contain no oil. If two reservoirs contained oil, it could be assumed that the fault was located in section between the manholds containing the reservoirs with oil in them.

A control cable for relaying was installed in the same trench with the 5-9/16" pipe between Boulevard and Grady Substations. The cable was a 2-conductor No. 9 stranded 3/64" Okolite insulation 1/64" Okoprene covering with 7/64" Okopreme jacket.

Conductor Fittings

Straight and Parallel Connectors, Cable Taps, Lugs, Tees, Service Connectors, Grounding Clamps, Elbows, etc., etc.
PENN-UNION ELECTRIC CORP.
ERIE, PA.
PENN-UNION

SUBALOX
LEAD AND ALUMINUM PAINT
Spot or Full Coat
for
Galvanized Structures.
It sticks, it blends.
SUBOX INC.
NORTH ARLINGTON, N. J.

ATTENTION PLEASE ENGINEERS

The largest manufacturer of switchboards and control equipment in the South — nationally advertised — has an opening for one switchgear engineer and one control engineer. If you are a graduate electrical engineer and are seeking an opportunity where ability and a willingness to work will insure your future at good pay—this is it. Write fully qualifications, experience, marital status and age. Address Box 614, care ELECTRICAL SOUTH, Grant Bldg., Atlanta 3, Ga.

WANTED
ELECTRICAL PROJECT ENGINEER

One (1) experienced graduate engineer, responsible charge electrical engineering and design of steam-electric and hydro-electric power plants and high voltage substations. Applicants please furnish personal data and Experience Record.

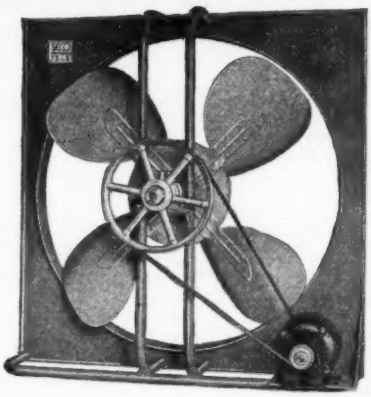
Box 122, Church St. Station P. O.
New York 6, N. Y.

SECO BELT DRIVEN COOLING FANS

Better than ever

Its simplicity of design permits easier installation in Walls, Attics, or Penthouses.

SECO Fans deliver a maximum volume of air at slow speed, with extreme quietness.



...ideal for
ATTICS
SCHOOLS
CHURCHES
and for
Industrial Installations

24", 30", 36", 42", 48".
(3800 to 18,500 C.F.M.)

Write for Illustrated Bulletin, Specifications & Prices.

Contact your nearest Distributor or write

SECO-LITE MANUFACTURING CO.
4916 EASTON AVE. • ST. LOUIS 13, MO.

WASHING MACHINE PARTS — ALL MAKES

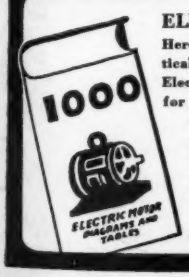
PROMPT SHIPMENTS

DISTRIBUTORS — Goodrich Wringer Rolls
Gates Belts
T-K Range Parts

Trible's Inc.
Electrical Appliance Parts

811 9th St., N. W. Washington 1, D. C.

1000
ELECTRIC MOTOR DIAGRAMS AND TABLES



ELECTRICIANS — MOTOR REPAIRMEN

Here is the book you have been waiting for! A practical encyclopedia of information on all types of Electrical Motors and Controls. Contains connections for Single, Two and Three Phase and DC Motors. Both standard and special circuits. Methods of rewinding and reconnecting for change in voltage, phase, speed, frequency. Hundreds of selected tables. Book now available at $7.25 each. Money-back guarantee. Free literature.

EDUCATIONAL ADVANCEMENT COMPANY
Box S-01 LAKEWOOD, NEW YORK

REMEMBER THE NAME . . .

1915 Sepco 1946

AUTOMATIC ELECTRIC WATER HEATERS

One of the First . . .

In 1915 we introduced the first "Sepco" Water Heater which would heat water electrically.

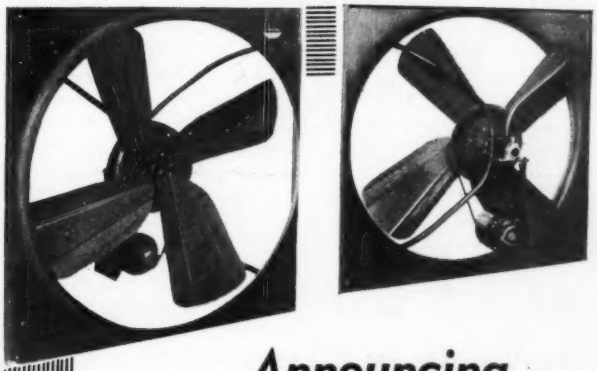
Through these years they were constantly improved to provide quick, dependable trouble free hot water supply.

We attribute their performance to Sepco's five exclusive features—

SEPCO—Vertical Heating Unit
—Snap Action Immersion Thermostat
—Special Design Diffuser
—Easy to Service
—Adaptability to Any Specifications

Manufactured only by

The Automatic Electric Heater Co., Inc.
POTTSTOWN, PENNA., U. S. A.



Announcing . . .

"Silver-Aire" Fans

EXHAUST OR ATTIC

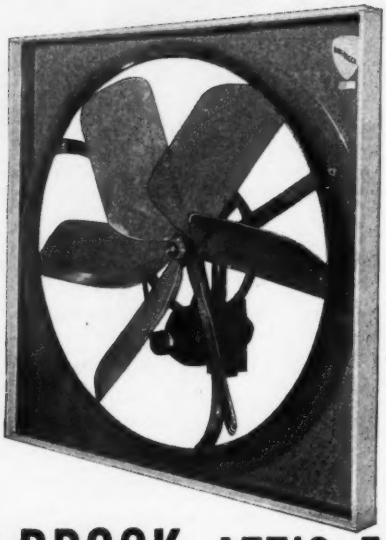
We take pride in announcing the "Silver-Aire" Fan, for both exhaust and attic use. These fans are supplied with either G.E. or Westinghouse motors, and are available in 36" and 42" sizes.

Available immediately in limited quantities to jobbers ONLY.

A PRODUCT OF

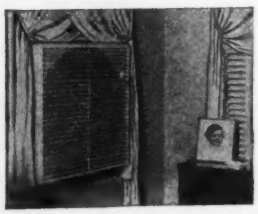
C & H AIR CONDITIONING FAN CO.
INCORPORATED
1603 DEKALB AVE., N. E. ATLANTA, GA.

A SURE WAY TO PROFIT



BAR-BROOK ATTIC FANS

The dealer who investigates the BAR-BROOK Attic Fan now is lining himself up on the shortest path to increased profits next summer. This efficient package-unit appliance is a proven profit-maker which sells on sight. And no wonder! Look at these fine BAR-BROOK features that count with customers: engineered—not a make-shift cooling unit, ratings certified under ASHVE code, silent, economical, quickly and easily installed, aero-dynamically correct orifice design, and it gives trouble-free, dependable COMFORT COOLING!



The *New* Bar-Brook Window Fan

At last, a window fan of modern, functional design. Ideal for apartments, small homes, offices. Only 5¼" thick. Looks like venetian blind.

Don't wait until thermometers soar next summer — NOW is the time to investigate BAR-BROOK Attic Fans, the appliance that makes customer satisfaction and dealer profit.

Write now for information about your territory!

Midwest Representative:
Earle Goetze Company
Mdse. Mart, Kansas City, Mo.

Southeastern Representative:
Fulwiller & Chapman Company
314 Luckie St., Atlanta, Ga.

Southwestern Representative:
Geo. E. Anderson Company
Santa Fe Bldg., Dallas, Texas

BAR-BROOK SHIELDS YOU FROM SUMMER HEAT

SHREVEPORT ENGINEERING CO.

1553 Texas Ave. Shreveport, La.

Index of ADVERTISERS

The Advertiser's Index is published as a convenience and not as a part of the advertising contract. Every care will be taken to index correctly. No allowance will be made for errors or failure to insert.

A

Adam Electric Co., Frank 12
Advance Transformer Co. ..... *
All-Steel Equip. Co. 7
Aluminum Co. of America 3
American Blower Corp. 37
American Coolair Corp 11
Anaconda Wire & Cable Co., Inc. 10
Anderson Brass Works, Inc. ... *
Appliance Distributing Co 81
Arrowhead Sales & Dis't. Co. ... 74
Atlanta Electrical Agents' 10-year Club ..... *
Automatic Electric Heater Co., Inc. 83
Automatic Electric Mfg. Co. ... *

B

Bendix Home Appliances, Inc. ... *
Benjamin Electric Mfg. Co. ..... Inside Front Cover
Briegel Method Tool Co. 72
Bull Dog Elec. Products Co. ... 53

C

C & H Air Conditioning Fan Co., Inc. 83
Chelsea Products, Inc. 5
Clark Water Heater Division ... 76
Collyer Insulated Wire Co. ..... *
Commercial Credit Co. 65
Crescent Insulated Wire & Cable Co. 68
Crouse-Hinds Co. 47
Curtis Lighting, Inc. ..... *

D

D & M Mfg. Co., Inc. 69
Day-Brite Lighting, Inc. 66

E

Edison General Electric Appliance Co. ..... *
Educational Advancement Co. ... 83
Efficiency Elec. & Mfg. Co. ... 70
Electric Steam Radiator Corp. ... 71

F

Federal Electric Products Co., Inc. 43
Frigidaire Division 39

G

Gedney Electric Co. ..... *
General Electric Co. (Adequate Wiring) ..... *
General Electric Co., (Construction Materials) ..... Back Cover
General Electric Co., (Insulating Materials) 49
General Electric Co., (Lamps) 8
General Electric Co., (Premier Vacuum Cleaner Serv.) ..... *
General Electric Co., (Wiring Devices) ..... *
General Mills, Inc. (Home Appliances) 63
Gibson Mfg. Co. Inside Back Cover
Good Mfg. Co. ..... *
Graybar Electric Co. ..... *
Great National Air Conditioning Corp. 64

H

Harco Equipment Co. 62
Hazard Insulated Wire Works 1
Helwig Company 82
Holdenline Co. 45
Hotel Lennox ..... *
Hotel Mayfair 80
Hubard & Company 4
Hunter Fan & Ventilating Co., Inc. ..... Front Cover

I

Ideal Industries, Inc ..... *
Ilsco Copper Tube & Products Co., Inc. 82
Insto-Gas Corp. 80
Insulation & Wires, Inc. 6 and 69
Irvington Varnish & Insulator Co. 61

J

Jones Metal Prod. Co. ..... *

K

Kearney Corp., James R. 9
Krueger & Hudephol 78

L

Landers, Frary & Clark ..... *
Lenk Mfg. Co. 75
Lloyd Products Co. 81

M

M & W Electric Mfg. Co., Inc. *
Malleable Iron Range Co. 67
Martin Fan & Blower Co. 75
Mastercraft Electric Co. 59
McGill Mfg. Co., Inc. 76
McGraw Electric Co. 76
Mitchell Mfg. Co. 41
Monarch Fuse Co., Ltd. ..... *
Murdock Co., Wm. J. 79

N

National Electric Products Corp. *
Noblitt-Sparks Industries, Inc. 57

O

Okonite Co. 1

P

Paragon Electric Co. 78
Penn-Union Electric Corp. 82
Premier Vacuum Cleaner Division ..... *
Proctor Electric Co., Division ... *
Progressive Farmer 2

R

Reading Electric Co., Inc 77
Reed Unit-Fans, Inc. 77
Rittenhouse Co., Inc., A. E. 73
Royal Electric Co. ..... *

S

Samson United Corp. ..... *
Sangamo Electric Co. ..... *
Schwitzer-Cummings Co. 79
Seco-Lite Mfg. Co. 83
Shreveport Engineering Co. ... 84
Spero Electric Corp. ..... *
Square D Co. ..... *
Stonewall Company 81
Subox, Inc. 82
Superior Insulating Tape Co. ... 75

T

Trible's 83
Trilmont Products Co. 77
Trumbull Electric Mfg. Co. ..... *

U

United States Rubber Co., Inc. (Tape Division) ..... *
United States Rubber Co., Inc. (Wire Division) ..... *

V

Val-Lite Southern, Inc. 35
Virden Co., John C. 81

W

Wakefield Brass Co., F. W. ..... *
Walker Electrical Co. ..... *
War Assets Administration ..... *
Ward Leonard Electric Co. 79
Westinghouse Electric Corp. (Appliances) ..... *
Westinghouse Electric Corp. (Lamps) 55
Weston Electrical Instrument Corp. ..... *
Wiegand Co., Edwin L. ..... *

Y

Youngstown Sheet & Tube Co. ... 33